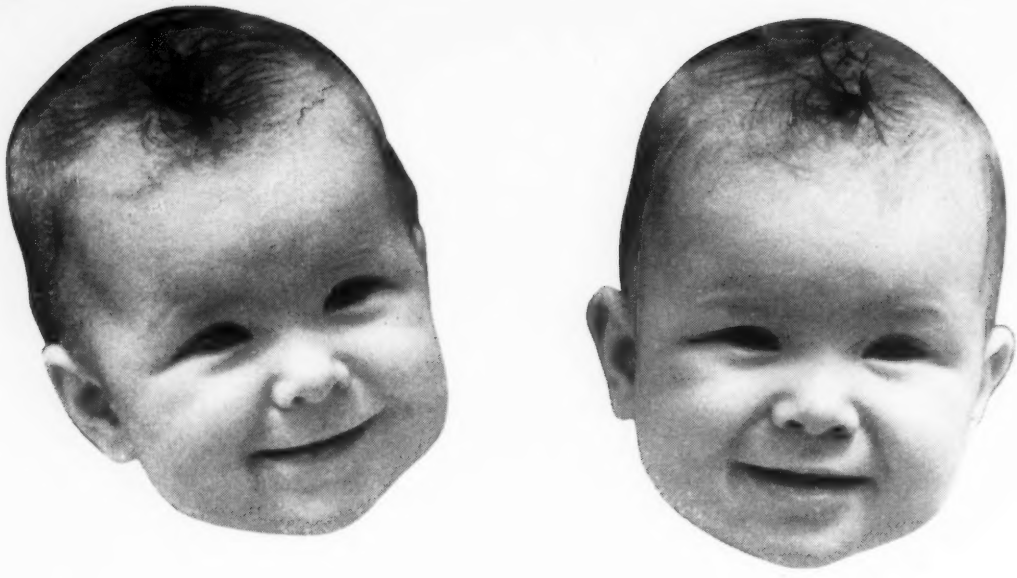
TELEPHONY



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ABC of the Telephone

By FRANK E. LEE

PART XXXIX. Electronic testing of aerial cable and drop wire. The preceding article in this series appeared in the Jan. 22 issue, p. 13.

DURING the past few years, substantial progress has been made in preventive maintenance testing of subscriber cable plant. Actually, the progress has been made in the speed with which certain preliminary tests are made, rather than in the principles involved. Practically all operating companies are equipped with precision testing equipment in the form of accurately calibrated meters and electrical measuring devices. Once a test connection is established with a certain pair of cable conductors, most exacting tests can be made. Crosses, shorts, or grounds, can be detected even though the current flow through the fault amounts to as little as a fraction of a milliampere. Using the terms of the testman, these minute faults are referred to as leaks of five, 10, 25, or 40 volts, and are read on a voltmeter scale.

A leak that must be measured in volts usually will not interfere with normal use of the subscriber's line circuit. However, these small leaks in aerial cable or drop wire plant indicate a circuit fault is developing. According to the usual pattern, the small leak or insulation breakdown will get progressively worse. After a period of time, the leak may have grown to such an extent that the circuit will not function. The next step is to locate and repair the fault, and thus restore the circuit to service.

As mentioned in previous parts of this series, corrective maintenance as compared with preventive maintenance, is less desirable for the following reasons:

(1) Subscriber's line goes out of service.

(2) Trouble of this nature generally appears during the most inclement weather.

(3) Maintenance costs are increased.

Obviously the answer lies in making more frequent tests to locate circuit faults in the developmental stage before they have become service-interfering cases of trouble. Once located, the faults can be cleared on a preventive maintenance basis with all of the advantages to both customer and the company.

Use of Conventional Equipment Costly for Wholesale Tests

Conventional meters, and the many features of the standard wire chief test desk, offer an ideal means of classifying, testing, and assisting in the actual location of subscriber line circuit faults. However, some means must be provided to connect the test equipment to each subscriber line. This connection can be made through the central office switchboard or switching equipment, or by special test cords at the main distributing frame.

After the connection is established, the testman can "read" the line and determine whether or not a fault exists. During the time the connection is made with the test desk, the circuit is out of service as far as originating and terminating traffic are concerned. When the tests of one line are completed, the connection must be broken and the entire sequence repeated to test another subscriber line or cable conductor.

If preventive maintenance tests of subscriber aerial cable and drop wire plant are to prove of any value, they must be made at regular intervals, or during periods of inclement weather. Also, the over-all results are best when the entire outside plant is included in one test cycle.

As mentioned above, the usual test desk facilities were developed for making exacting tests and to help locate and clear specific cases of trouble. They were not intended for the wholesale tests required to put aerial cable and drop wire plant testing on a production basis.

Assume that in an exchange with 10,000 cable pair terminations on the main distributing frame it is desired to test all cable pairs during a three-hour wet period of a rain storm. In three hours there are 10,800 seconds. A certain amount of time will be required to "tag" cable pairs on which faults are found. As a result, each cable pair must be tested in less than one second. Such speed is impossible with conventional test equipment. The answer to the problem lies in the use of high speed electronic test equipment. Electronic test equipment in the form of a vacuum tube voltmeter has a theoretic testing capacity rated at 8,000 cable pair terminations per hour.

Vacuum Tube Voltmeter

The vacuum tube voltmeter is not an actual meter in the fullest sense of the word. Instead, this device detects a drop in potential beyond a predetermined value. The value of the potential drop or the exact nature of the fault are not determined by the vacuum tube voltmeter. However, once the vacuum tube voltmeter has located the one line out of a hundred on which trouble exists, regular equipment can be used efficiently to complete the testing job.

In its simplest form, the vacuum tube voltmeter consists of a detector tube in a high impedance circuit, and an amplified tube circuit used to operate a sensitive polarized type relay. When the relay is energized, an audible

or visual signal operates to tell the operator a faulty circuit has been detected.

A typical vacuum tube voltmeter with the test shoe brushes in contact with the tip and ring terminals of a subscriber's line circuit is shown in *Fig. 1*. The variable resistances are provided in order that the test set can be adjusted over a relatively wide range of line insulation leak valves. The need for these adjustments will be discussed fully when the various tests are outlined.

Where the sleeve lead of the sleeve guard circuit appears on clips associated with the tip and ring clips of the intermediate distributing frame (IDF), the vacuum tube voltmeter can be equipped with a three-brush test shoe. If a particular line is busy, or is already in trouble, ground will be on the sleeve clip at the IDF. When the sleeve brush of the test shoe contacts the sleeve of a busy line, the ground is extended to operate a sleeve relay in the electronic test set, and the test circuit is opened.

Another type of vacuum tube voltmeter uses only a tip and ring brush in the test shoe. When a busy line is tested, a buzzing sound is generated in the vacuum tube voltmeter telling the operator the shoe is in contact with a busy line. The high impedance input of the test circuit does not interfere with the busy line.

Concerning this particular point, the question usually arises, "How can the electronic test set identify a line in trouble where the current drain approaches that of a normal busy line?"

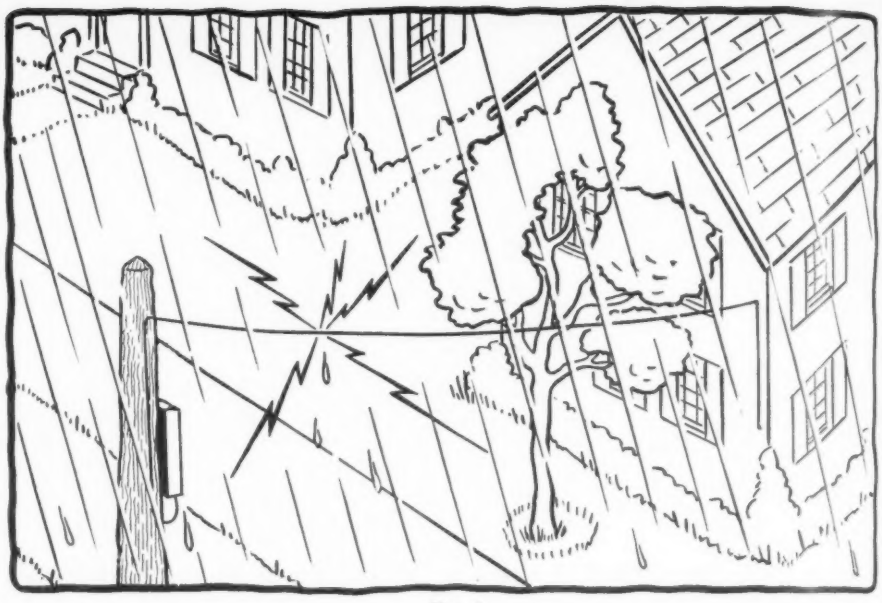

Fig. 2

The answer is that this particular line actually is in trouble, and the high current drain will create a permanent signal in the central office. On this basis, the line in trouble already will have been called to the attention of the plant maintenance forces. Further identification by the electronic test set would be unnecessary.

Use of Electronic Test Set

The electronic test set is used to detect cable conductor faults which are above a certain value and range upward to values equivalent to the current drain of a busy line. Adjustments of the detector circuit of the vacuum tube voltmeter are possible to enable the detection of leaks of five volts, and ranging upward to 70 volts. For all practical purposes, the detection of a 70-volt leak is as high as is required for preventive maintenance purposes. Above that point the line usually falls into the category of a permanent signal, and becomes a corrective maintenance case.

By adjusting the detector circuit to locate leaks of a value of five to 10 volts, the vacuum tube voltmeter can be used during dry weather to locate sheath faults in the aerial cable plant. These tests are known as dry weather tests. During wet weather, the detector circuit can be adjusted to pick up leaks of 40, 50, 60, or 70-volt value to locate drop wires on which the insulation has become worn or deteriorated.

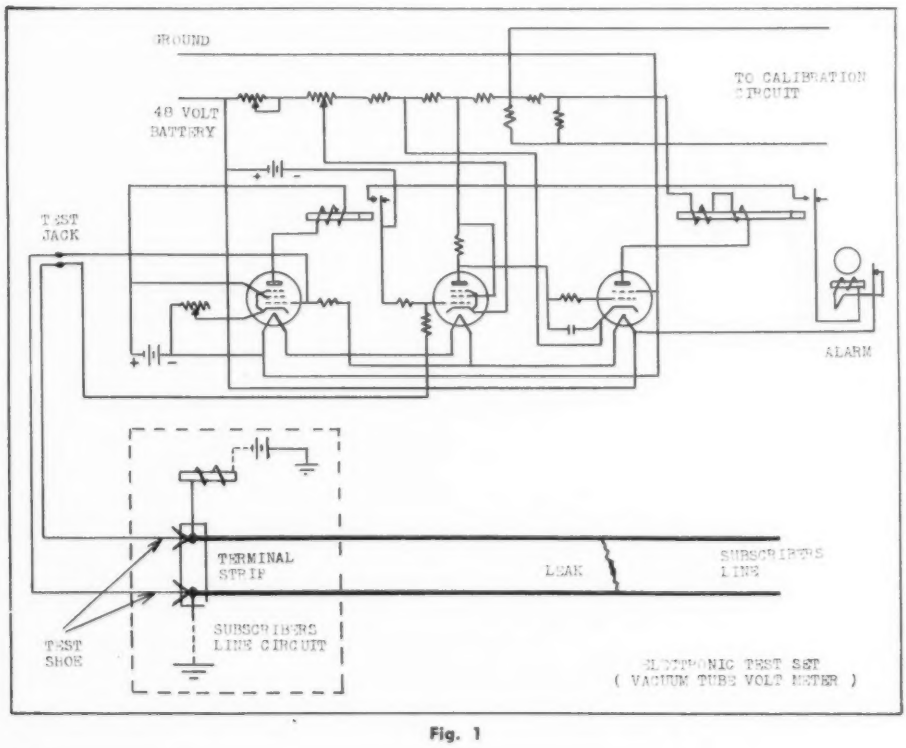

Fig. 1

Wet Weather Drop Wire Tests

A worn or defective drop wire usually causes the most trouble during rainy weather. As a general rule, a wet short, the kind that puts a customer's line out of service during the worst storms, develops gradually over a period of months. If the trouble is located and removed soon after the drop starts to fail, a service interruption is eliminated and repairs can be made more economically.

Wet weather testing procedures can be used to locate defective drop wires as soon as they start to fail, and usually before a service interruption occurs. As the name implies, wet weather testing means that during wet weather, cable pairs are tested from the central office on a wholesale basis. The vacuum tube voltmeter is used to make these tests.

As a general rule, wet weather tests are started after rain has fallen steadily in the exchange area for at least one-half hour. During a half-hour of steady rainfall, practically all of the

drops will be well-soaked and any insulation failures will be at their peak. A typical case of drop wire insulation failure aggravated by wet weather is illustrated in *Fig. 2*. When used for wet weather tests, the electronic test set is adjusted to detect leaks of between 50 and 70 volts, depending upon the cycle of the test being made.

Wet Weather Test Cycle

Subscriber line tests, as critical as wet weather drop wire insulation tests, should be planned on a cycle basis for a central office area.

For the purpose of this discussion, assume that in a particular central office with 10,000 drops in service, a program of wet weather testing is about to be initiated. During the first cycle, the electronic test set should be adjusted to detect leaks of 70 volts or more. A 70-volt leak is near the value where an insulation breakdown develops into a permanent signal and causes a complete circuit failure. Generally, sufficient drop trouble is recorded on the first cycle using a 70-volt insulation leak adjustment to enable drop wire repairs to be made on a programmed basis.

The second cycle should be made on the basis of detecting 60-volt insulation leaks. The third and succeeding cycles should be made with an adjustment that will detect 50-volt insulation leaks. Thus, as the cycles progress, the tests become more critical. This means the urgent cases will be cleared first, before further trouble develops. Also, the preventive maintenance drop wire repair activity will be spread evenly over a number of months.

The advantage of an even distribution of drop wire preventive maintenance activity is readily apparent. As an example, assume a 50-volt insulation leak adjustment had been used on cycle one. Practically every drop with any degree of failure immediately would be ticketed for maintenance attention. The exchange maintenance forces would be literally "snowed under" with an avalanche of trouble reports. This would introduce the possibility that the more urgent cases would not receive necessary immediate attention.

Wet Weather Maintenance Procedure

After the electronic test set has located a drop wire insulation failure, maintenance procedure is as follows:

(1) The cable pair terminal clip is identified with a suitable marker.

(2) Records are checked to associate cable pairs with subscriber line.

(3) The subscriber line card is secured from the wire chief's file.

(4) The line is tested from the test desk or with suitable meters to determine the actual trouble condition. This test is required in the event the drop should dry out before a repairman is dispatched to locate and clear the case, thus removing the indication of insulation trouble.

(5) When possible, repairmen can be dispatched to repair the drop wire without making further tests.

(6) Field inspections should center around the drop plant.

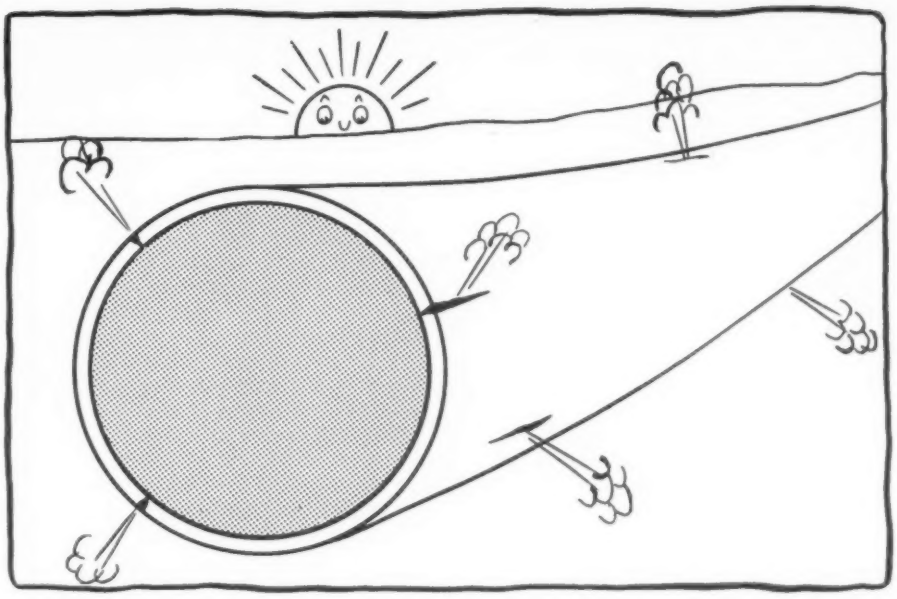

Fig. 3

Dry Weather Tests to Locate Aerial Cable Sheath Failures

The amazing improvement in over-all plant maintenance results made possible by wet weather tests to locate drop wire insulation failures encouraged telephone maintenance engineers to delve further into the possibilities of electronic testing with vacuum tube voltmeters. The net result of continued development of maintenance knowledge has led to a testing technique that can locate aerial cable sheath failures during dry weather.

The importance of this development warrants digressing for a moment to point out what this means in the over-all plant maintenance picture. During a rainstorm, a "wet" aerial cable usually means that a large number of subscriber lines are out of service. Repairs have to be made under adverse weather conditions, and usually at the most inconvenient time of day. There's no question that these things must be done if the subscriber lines are to be restored to service.

The essence of dry weather testing is the electronic test set which will detect the presence of atmospheric moisture around insulated conductors inside a cable sheath. These tests are made only when the weather is dry. During a storm, insignificant small leaks in the drop wire plant would distort completely the picture of line circuit leaks caused by aerial cable sheath failures. During dry weather, a drop wire with badly deteriorated insulation will test clear. Hence, the opportunity to test for other conditions, and the appropriate name—dry weather testing.

Description of Dry Weather Testing

A description of dry weather testing can best be made by explaining the reaction of a section of aerial cable to normal temperature changes during the 24 hours of a normal dry day. To facilitate this explanation, assume that at this particular location, the aerial cable sheath is porous or crystallized. The minute holes that result from this condition are not visible to the naked eye, except when held up to a strong light. Obviously, this cannot be done while the sheath is in place on the aerial cable.

During the day, the heat of the sun warms the cable sheath, which, in turn, causes the air trapped inside the cable to expand. The expansion of the air causes the cable to breathe out, or exhale, through the porous sheath, as illustrated in *Fig. 3*.

After sundown, and continuing through the night, the cable sheath temperature drops. In turn, the air inside the sheath contracts and the cable inhales through the porous sheath, as shown in *Fig. 4*. Thus, the natural laws of expansion or contraction of air when subjected to heat or cold create one condition, the breathing action of the cable, which makes possible dry weather testing.

The second condition is the normal moisture content of the atmosphere. Commencing immediately after sundown and continuing until the early hours of the morning, the dew point of the atmosphere increases. Usually

at 2:30 or 3:00 a.m. the dew point has reached its peak.

The combination of these two conditions causes the insulation inside the cable sheath to absorb a slight degree of moisture. This seemingly infinitesimal degree of moisture will cause an insulation leak that may range in value between five and 10 volts. Small insulation leaks can be read on standard test desk meters. Also, the vacuum tube voltmeter can be adjusted to pick up these small leaks while tests are made on a production basis from the main distributing frame.

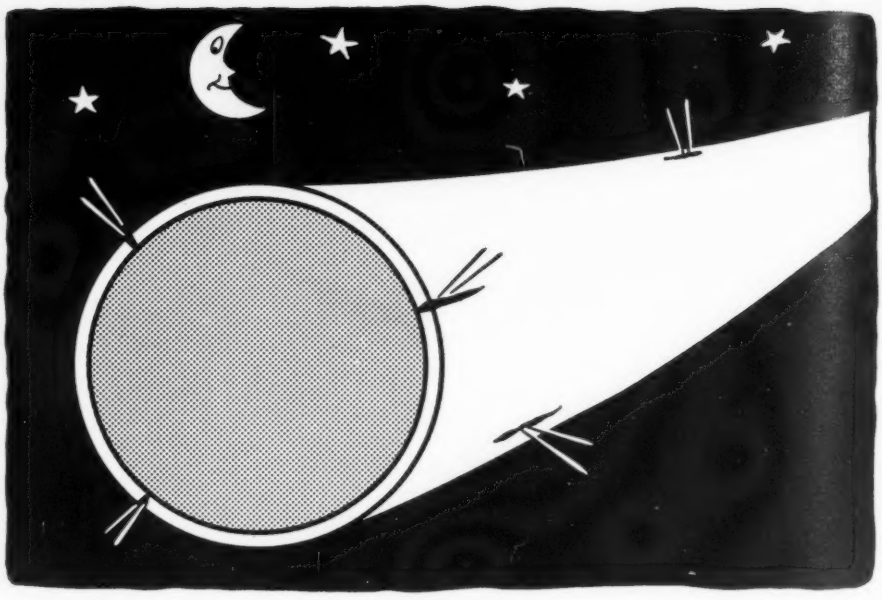

Fig. 4

Dry Weather Testing Procedures

A number of factors have an effect as to the time when dry weather tests should be made and how much aerial cable plant should be tested each day. These factors are:

(1) *Time of Day.* As previously outlined, contraction of air inside the aerial cable sheath and dew content of the air are both greatest between the hours of 2:30 and 3:00 a.m. For best results, dry weather tests should be started during that period, and may continue until 4 o'clock, if necessary.

(2) *Amount of Plant to be Tested Each Day.* The amount of plant, or number of aerial cable pairs to be tested in one day, best can be governed by the number of faults picked up by the electronic test set. Generally, aerial cable sheath faults cannot be found unless an insulation leak is measured to the exact location. Thus the governing factors are:

(a) How many faults can be traced, measured, and located before 11 or 11:30 o'clock in the morning when the insulation leaks start to dry out and test clear.

(b) How much test equipment, and how many men, can be assigned to these fault locating activities.

(c) The number of extraneous leaks other than cable sheath leaks detected by the electronic test set will have a bearing on how many cable pairs can be tested in one day. This statement is born out by the fact that terminal face plate leaks will give the same fault indication as a wet cable pair. However, all leaks detected must be tested or cleared before the possibility of a sheath leak can be eliminated.

(3) *Temperature.* The outside temperature must be at least 40° F. before the tests will be of any value. When the temperature is too cold, the moisture is frozen out of the air to an extent where the cable will not be affected.

When the aforementioned requirements are considered favorable for dry weather testing, the actual tests usually follow this pattern:

(1) Locate, tag, identify, and test fault as described for wet weather test.

(2) Retest the line immediately before dispatching repairman to trace the location of the fault. The purpose of this test is to determine that the leak is great enough to facilitate location by the repairman.

In this respect the dry weather test procedure is different than the wet weather test procedure. In the wet weather test, the line does not have to be tested before dispatching a repairman on the case.

(3) Dispatch a repairman only on lines that show an eight or 10-volt leak at the time field tests are to be made. Smaller leaks usually will "come clear" before any readings can be made or a location determined.

(4) Leaks that are picked up on a dry weather setting of an electronic test set are of much smaller value than those encountered in wet weather testing. The repairman may make his tests in conjunction with the test desk, or with a finely calibrated ohmmeter because these leaks are too small to be located with the receiver type test set. The use of an ohmmeter by the repairman has proved to be of considerable value because faults can be isolated without using the facilities of the test desk.

Faults Detected by Dry Weather Tests

Many different types of wiring, cable, and equipment faults will be detected by the electronic test set while making dry weather tests. These faults include:

(1) Corroded drops.

(2) Drop wire insulation worn through at the metal rings installed on brick walls.

(3) Drops worn in trees.

(4) Leaking condensers in the subscriber's telephone.

(5) Dirty cable terminal face plates.

(6) Crystallized armor in sleeves, terminal legs, and aerial cable.

(7) Gunshot holes.

(8) Squirrel holes where lead sheath only has been eaten away.

(9) Cable worn in rings.

From a review of fault conditions which will be detected by the dry weather test, the fact is apparent that smaller groups of cable conductors will be tested during the first cycle of tests than during subsequent cycles. In carrying out a dry weather test program, the main objective of the tests should not be overlooked. This objective is the location of aerial cable sheath faults.

Considerable time may be spent on clearing the more or less insignificant troubles, such as dirty terminal face plates. However, locating and clearing the aerial cable sheath faults in the exchange area is well worth the effort.

Plant maintenance costs can be lowered, and over-all service results will be improved by a well-planned and well-administered program of electronic wet and dry weather testing.

(To Be Continued)

A short time ago, a Canadian telephone operator handling a call from a pay station customer, rang back to have the customer hold the line for overtime. The customer, in a huff, stated in no uncertain terms that he was not going to pay for overtime and did not replace the receiver.

However, he could not open the door and the operator, having her key open, heard terrific banging in the booth. Apparently the door was stuck and, becoming more irate than ever, the customer picked up the receiver and snapped to the operator: "Alright, smarty pants, here is the overtime money! Now open that door and let me out of here!"

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Administration trying to "stampede" pet bills through Congress with minimum hearing time. . . . Bills to amend Taft-Hartley and minimum wage laws subject to such procedure. FCC prescribes depreciation rates for the Michigan Bell Telephone Co.

IT is easy to see what the Democratic majority has in mind in trying to steamroller the two major labor bills through the 81st Congress. Stated simply and plainly, the administration wants this job done during the "honeymoon" period, before any opposition has a chance to crystallize.

At present writing, it looks as if the administration will be moderately successful in this strategy. Certainly the Republican minority cannot do much more than put in a few anguished cries during floor debate in the House and Senate about "strong-arm" tactics. Any effective influence towards more deliberate procedure must come from within the Democratic Party's own ranks. There are responsible veteran Democrats, such as Representative Barden of North Carolina, who sense the long-range danger of trying to stampede special interest legislation of this kind through Congress. But most of his party colleagues appear indifferent to the risks involved. They figure that it is safe politics—which is probably true, for the present time at least.

As for the labor bloc in Congress, there are indications of a positive fear of prolonged hearings or debate. The fact of the matter is, of course, that statistics simply do not bear out the wild claims, made during the recent election campaign, that the Taft-Hartley Act has hurt the unions or the workers, or instigated strikes. The actual experience during the tenure of the Taft-Hartley Act has been to the contrary. Wages have increased and so has union membership, while strikes have lessened.

But that is not the kind of talk the 81st Congress wants to hear. So, we witness legislation being rammed through on bob-tailed hearings, with the idea that the quicker the vote the less likelihood there is of any congressmen getting disquieting mail from home, or questioning of scruples resulting from opposition debate.

As for the Wage-Hour Bill, it seems to be moving almost too quickly for a weekly column such as this to cover the fine points. At the present writing, two bills—presumably administration bills—are before the respective labor committees of the House and Senate. The Thomas Bill (S. 653) is similar in all practical respects to the bill earlier introduced in the House by Representative Lesinski (D., Mich.), chairman of the House Labor Committee. Both of these bills substantially reduce the exemption now prevailing in the Fair Labor Standards Act for telephone operator's wages at exchanges serving 500 stations or less. Both of these bills whittle this exemption down to exchanges so small as to require only one operator on duty at a time.

Representative Lesinski, who originally hoped to snap his bill through hearings which might be closed up in a single day, finally yielded to pressure to extend hearings through the current week (beginning Jan. 31). Senator Thomas, chairman of the senate committee, who evidently takes his cue from the same source of administration prompting, also spoke of possible "one-day hearings." But the senate hearings, scheduled to come before a subcommittee, were slightly delayed by earlier consideration of bills to amend the Taft-Hartley Act. These sub-committee hearings may be extended as well.

In addition to the amendment whittling down the small telephone exchange exemption, the Thomas-Lesinski bills would amend the Fair Labor Standards Act as follows:

(1) Raise the minimum wage from its present 40 cents to 75 cents an hour, and provide for industry committees to set higher minima, industry by industry, up to a dollar, but would also permit their reconvening in time of "general recession" to lower them from that lofty peak back to 75 cents.

(2) Give the responsibility for administering the Wage-Hour Act to the Secretary of Labor (which provides some clue as to who originated the proposals) and reduce the Wage-Hour Division to a mere bureau under his control.

(3) Extend the scope of the act to virtually every business in the country by (a) extending coverage to "activities affecting commerce" or "competing with any activity in commerce" and (b) by drastically narrowing the present retail and service trade exemptions, abolishing the "first processing" and "area of production" exemptions, for agricultural processing industries, in favor of a mere seasonal exemption; (c) by slashing the scope of the motor carrier exemption (as well as the small telephone exchange exemptions), and (d) by eliminating the minimum wage exemptions for seamen. It adds a new exemption for taxicab drivers.

(4) Give the secretary power to make binding regulations, and permit him to sue for employe back wages due in case of violation of the act. If the employer pays up before suit is brought, he need not pay any liquidated damages.

(5) Increase the two-year statute of limitations of the Portal Act (Gwynne Bill) to four years.

(6) "Solve" the overtime-on-overtime situation in more detailed fashion than the much criticized Ball Bill did last year, but far less favorably to employers.

(7) Not *purport* to change the Portal Act, except as noted above.

(8) Provide a direct prohibition on the use of child labor in commerce.

In short, the bill is a complete rewrite of the present law. It follows, in large measure, the recommendations of the administrator in his recently released annual report. Many employers will certainly want to present their views on this bill, if they have any time for it. They should write to the

clerk of the Senate Labor Committee for permission to so testify. The house hearings will probably be all over by the time these lines are printed.

Although the hearings to date on the Wage-Hour Bill in the House have produced some challenging questions by Republican members McConnell of Pennsylvania and Gwynne of New York, and even sarcastic but penetrating observations by Democratic Representatives Barden of North Carolina and Lucas of Texas, the whole setup looks like a pretty well oiled operation.

Your correspondent, because of other duties, was unfortunately unable to attend these hearings, but he did examine a transcript of the testimony very closely. One thing, that struck this writer most forcibly, was the lack of any recognition of the fundamental difference between a minimum wage and a prevailing wage. The whole concept of a minimum wage is that of an underlying foundation—not what industry normally pays employes who are satisfactory workers. The idea of rewarding the most unskilled and incompetent worker at a level approaching that of the efficient and experienced worker can have the demoralizing effect of putting a premium on stupidity and a penalty on willingness.

A minimum wage is intended only to set a floor under the wages of the least skilled workers. When the rate for these least skilled is raised, the wages for all now getting more than the minimum are pushed upward, for in its own interest industry must preserve existing differentials. It is estimated that not more than 10 per cent of workers are at the minimum rate. If a raise in the minimum affected only these, society could conceivably afford a minimum much higher than even 75 cents an hour. But a raise in the minimum is only the beginning of an upward spiral.

As to bills to amend or repeal the Taft-Hartley Act, the majority was in such a hurry to ram them through that somebody actually fumbled the ball between the White House and the Capitol. Senator Thomas, on Jan. 28, called his committee together for the purpose of getting the stampede started. But there was a mix-up in the signals back of the administration scenery, and the bill failed to appear, causing Senator Thomas to delay proceedings over the weekend.

The delay visibly irked the Democratic members of the labor committee, who voted, on Jan. 24, to speed up consideration of the Taft-Hartley repealer by completing hearings by Feb. 10. They also ruled that their vote, in effect, was tantamount to the committee's approval of killing the present law and that no testimony would be taken on that phase of the issue.

But the GOP members of the committee, who had protested the short hearings, both as to time and matter, were gloating over the fumble.

"It has been suggested that the Democratic steamroller had to be towed to the White House for new fuel," said Senator Morse (R., Ore.), who, on Jan. 28, called the Democratic-planned committee procedure a "farce."

The committee formally announced on Jan. 24 that the hearings would start Jan. 28. In explaining the cancellation, announced a bare half-hour before the hearing was scheduled, Senator Thomas, committee chairman, said Maurice J. Tobin, Secretary of Labor, wanted to get the cabinet's support for the amendments before submitting them to the Senate.

Secretary Tobin refused to comment on reports that union pressure in opposition to some sections of the proposed legislation caused a change in the plans. It was known that, as of a few days previous, a draft of one amendment contained provisions for government injunctions in strikes creating a national emergency after a set cooling-off period.

FCC Moves in on Depreciation

Legally speaking, the Federal Communications Commission probably has had the power to prescribe depreciation rates for Bell System companies, and other companies subject to its jurisdiction over interstate operations, ever since the Communications Act was passed nearly 15 years ago. But it was only during the past week that the FCC announced the first official step in this direction. (The gobblede-gook word for such a stall is to say that the commission "implemented" its authority.)

The reason for the delay doubtless has been the FCC's unwillingness to conflict with any different or contrary depreciation practice of the various state commissions having intrastate jurisdiction over these telephone companies. This first case involved the Michigan Bell Telephone Co., on which

(Please turn to page 39)

COMING 1949 CONVENTIONS

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 15.

Texas Telephone Association, Baker Hotel, Dallas, Mar. 21, 22 and 23.

Ohio Independent Telephone Association, Neil House, Columbus, Mar. 28, 29 and 30.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 5 and 6.

United States Independent Telephone Association (executive conference), Edgewater Beach Hotel, Chicago, Apr. 11 and 12.

Nebraska Telephone Association, Lincoln Hotel, Lincoln, Apr. 19 and 20.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, Apr. 27 and 28.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 4 and 5.

Pennsylvania Independent Telephone Association, Abraham Lincoln Hotel, Reading, May 9 and 10.

Kansas Telephone Association, Jayhawk Hotel, Topeka, May 17 and 18.

Wisconsin State Telephone Association (hotel and city unannounced), May 18 and 19 (tentative).

New York State Telephone Association, Jamestown Hotel, Jamestown, May 25 and 26.

California Independent Telephone Association, Biltmore Hotel, Los Angeles, June 23 and 24.

United States Independent Telephone Association (annual convention), Stevens Hotel, Chicago, Oct. 11, 12 and 13 (tentative).

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

WE HAD the pleasure recently of inspecting a new voice recorder development, designed especially for dispatching and control tower work. This new equipment incorporates an ingenious idea for using four turntables which operate consecutively.

When you start recording, the first 15 minutes of conversation are placed on turntable No. 1. When this record approaches to within 30 seconds of the end, the second turntable starts. There is an overlap of 30 seconds on the records between each turntable. This sequence continues on through turntable No. 4 which in turn starts No. 1 again and the sequence is continued.

With this equipment, unbroken recording for an hour may be had without changing a single record. Continuous recording is obtained by changing all records once each hour.

• • •

We hear frequent reference to the various deadly wars in which our country has participated and the great number of lives lost in each. Despite all this, more people actually have been killed in car accidents during the 50 years since the automobile was invented than have been killed through all the wars in American history.

The four war years produced 120,000 civilian amputees and 18,000 military amputees which proves conclusively, in our opinion, that more people are killed and maimed in industry than in wars and indicates further the necessity for the strict observance of safety practices at all times.

• • •

A new room-type humidifier requiring no steam, pumps, compressors or return lines should prove extremely useful in telephone exchanges to combat the harmful drying effects of the average heating system.

This humidifier operates in the following manner. Water is brought into the bottom pan of the unit and the water level is controlled by a float valve. A hollow copper tube rotating in the water forces a thin stream to ascend onto a disc revolving at 3,450 RPM. This fine sheet of water is hurled onto a circular copper comb and instantly pulverized. Mounted on the bottom of this copper disc are small blades which create a turbulence in the air inside the unit. The air seeks escape and finds it through the portholes in the dome, carrying with it the finest of the water vapor from inside the unit. The coarser water falls back to the bottom of the pan and is reused. Vaporizing capacity is slightly over one-half gallon per hour.

• • •

Recently we made a small test installation of rubber floor duct to protect telephone wires over an asphalt tile floor. The ease of installation and utility of this product is truly remarkable.

The floor surface is cleaned, the underside of the duct coated with adhesive, permitted to dry for five minutes, and then pressed in place. The duct then remains firmly in place and is not affected by floor cleaning, normal traffic, or furniture movement.

All this is certainly a far cry from the old days when hard floors of tile and cement had to be drilled and surface moulding installed by the use of anchors and screws.

• • •

The monthly publication of the Indianapolis Technical Societies Council, "Indianapolis Engineering," for November, 1948 carried an interesting article, entitled: "Our Telephone—Past, Present, and Future." It was authored by Martin J. Luichinger, outside plant coordination engineer for the Indiana Bell Telephone Co., and a Signal Corps veteran of two wars.

In this article, Mr. Luichinger expresses the following philosophy as regards the telephone industry: "I believe the future, in its true sense, will never be fully realized, for as the future is approached, it becomes the present, enriched by the past."

• • •

When mobile telephones are installed in motor vehicles, their drivers may now be warned of a call even though the latter are some distance from the vehicle. Relay control equipment linking the mobile telephone with the vehicle's horn or other auxiliary signal such as a loud gong or a flashing light may be arranged to signal the driver or attendant from a distance.

This arrangement proves useful for contractors on large construction jobs as field men, even when working some distance from the vehicle, can hear the telephone ring.

• • •

It has been said: "An economist is some one who has a plan to do something with somebody else's money."

• • •

A Washington, D. C. family has a coatimundi for a pet and it has the run of the house. This small raccoon-like animal which normally inhabits the treetops of Latin American forests is very inquisitive, and persists in lifting the telephone receiver. It seems to enjoy the buzzing of the dial tone.

• • •

During the past several months, we have noted frequent use of flashing red lights mounted on telephone trouble and construction trucks when parked on or near heavily traveled streets and highways. We made mention of this arrangement as desirable in answering a query from a reader as to what might be considered the most effective type of obstruction light.

We were immediately advised by another reader that the practice of using flashing lights on other than police and fire department vehicles is prohibited in Illinois, Indiana and Ohio. It was further stated by our informant that these flashers might be used when mounted on a pedestal

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When you buy Strowger Automatic equipment, you buy *peace of mind!* You know you'll get dependable service from your equipment, because today's Strowger equipment is backed by a record of more than fifty years of dependable service—plus this "hidden feature" that protects your investment.

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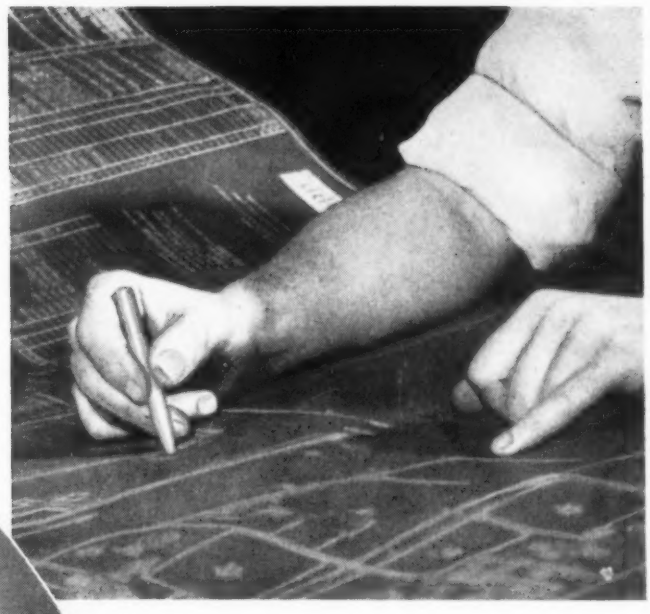

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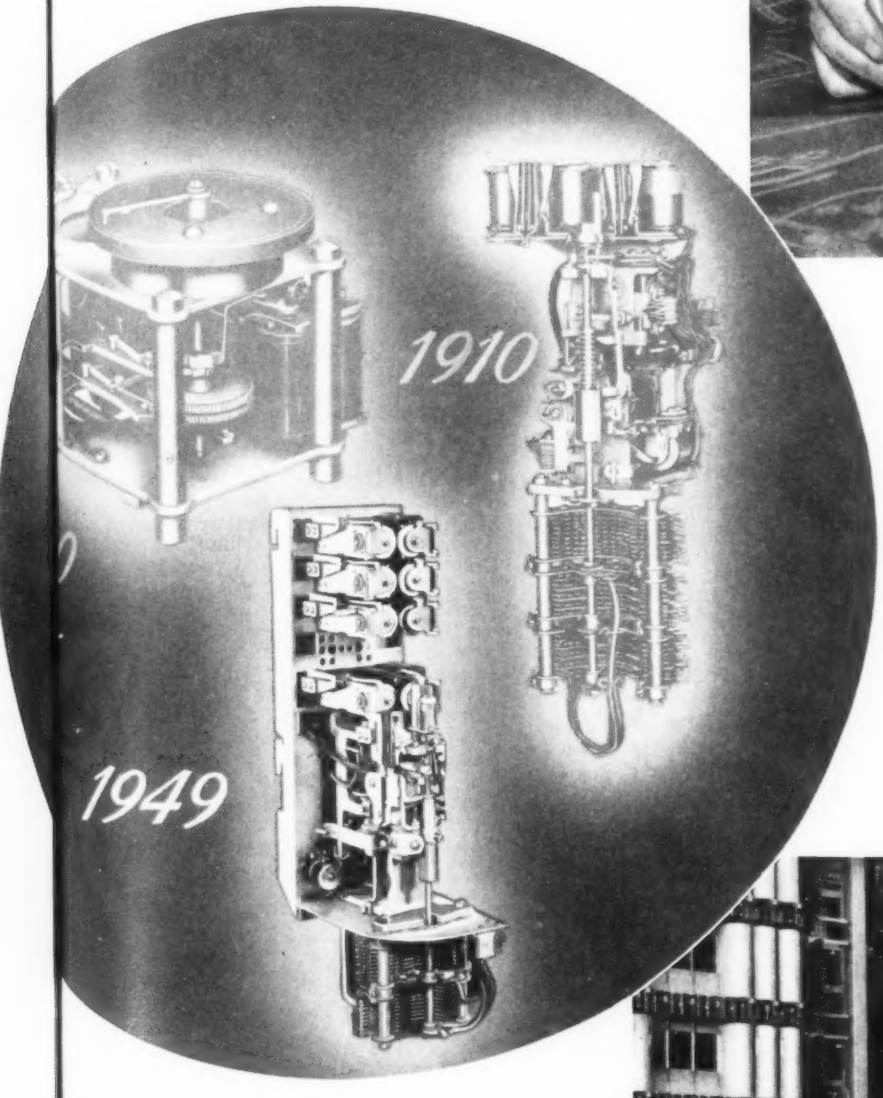

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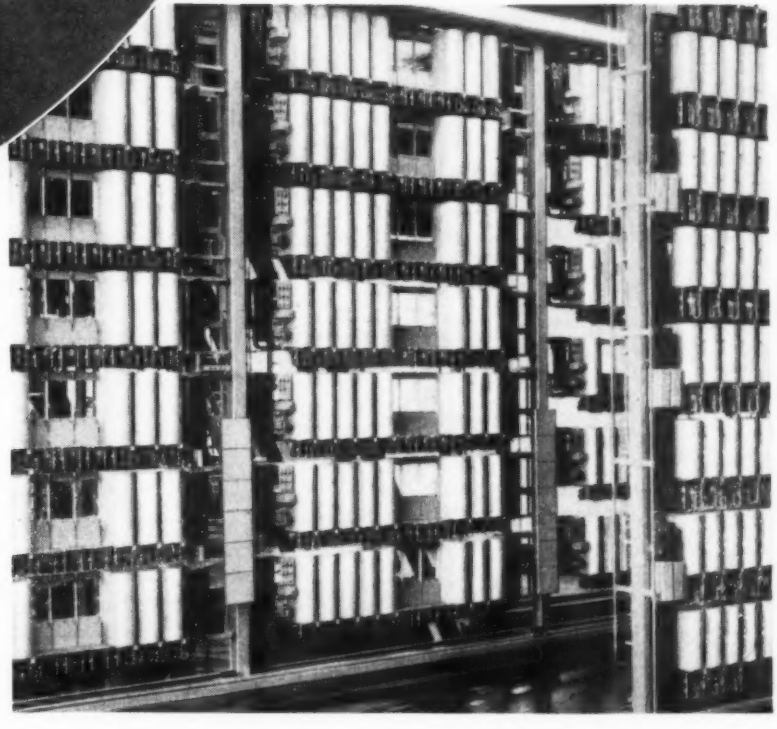

Today's Strowger Automatic equipment has developed from 50 years of successful performance, *in the field.*

near an open manhole, but could not be legally used on a motor vehicle. Whereupon, we then wrote the National Safety Council for information in regard to a general policy on the use of flashing lights for telephone vehicles and have received the following answer from David M. Baldwin, Director, Traffic and Transportation Division of that organization:

"It is almost impossible to make any broad statements on statutory regulation of lighting equipment on motor vehicles. States vary greatly in their requirements, and the only accurate answer to your question would have to be obtained by writing to each of the 48 states.

"On the other hand, I think you may be interested in the suggestion made in the Uniform Vehicle Code, which is recommended model legislation for states on the subject of traffic control. This code has, incidentally, been adopted in whole or in part by a large majority of the states.

"The code prohibits flashing lights on most vehicles but makes an exception in the case of police and fire vehicles and authorized emergency vehicles. This latter class is defined to include emergency vehicles of municipal departments or public service corporations as designated or authorized by the proper authorities. It would appear, therefore, that this might permit the installation of such lights on emergency vehicles of the telephone company, provided they were properly designated by the authorities.

"In Illinois, for instance, where the Uniform Vehicle Code has been adopted almost completely, the law contains such a section, but limits its application to cities over 500,000 in population. In Indiana, another of the states you mention, the authority to designate these authorized emergency vehicles is vested in the state safety committee. In Ohio, the other state you mention in your letter, specific authorization is apparently not required, but the vehicles must be properly identified. I suspect that other states would illustrate other variations, probably minor, of this requirement."

It would appear from the above that before any telephone company plans the use of flashing obstruction lights on its vehicles, it will be a good plan for it to consult the local and state authorities in order to obtain a ruling in each particular case.

PLANT MAN'S QUIZ

Q. What is the meaning of the term, "block distribution" as applied to exchange cable distribution and how can this type of plant be used?

A. In general, this type of plant consists of cable attached to the rear of buildings along alleys. Careful consideration must be given to the attitude of property owners and the cost of rights-of-way when planning the use of facilities of this nature. In general, the use of block distribution should be considered in areas having high station density such as business districts and apartment house areas.

• • •

Q. What size ducts are considered best suited for use in an underground telephone cable plant?

A. In general, all main conduit runs should be 3, 3½ or 4 ins. In view of the small cost differential and the numerous advantages of pulling-in cable, the 4 in. size is considered preferable when the larger-sized cables are to be used.

Lateral runs, such as ducts from manholes to terminals, may usually be 2 ins., although 3 ins. is often used for this purpose.

• • •

Q. A local power company has requested us to move one of our common battery metallic rural lines so that it can construct a new 138,000 volt transmission line in its present location. The company is willing to bear the expense of such a move and suggests that we build on the edge of its 100-ft. right-of-way. However, this would place our rural line within 50 ft. of the company's high line.

Or, as an alternate plan, the company will give us free contact on the poles of its 33,000 volt power line which runs parallel to the high line and serves the same customers that we do on the telephone line. The other side of the road from the 33,000 volt line has some impossible right-of-way conditions so we cannot build in this location.

To sum it all up, our problem is to decide whether it will prove a better practice to build a new rural line on the right-of-way of the high line or to provide joint construction on the 33,000 power line. We shall appreciate your advice in this matter.

A. In view of the fact that the power company is willing to bear the cost of moving the rural line, it is our opinion that your best plan is to reroute it on the new poles located on the power line right-of-way. Even though the new telephone line will be located only about 50 ft. from the high line, if care is exercised in its construction and it is well balanced, transposed and coordinated with the power line, serious trouble probably will not be experienced.

While it is entirely possible to place a telephone circuit on power poles supporting 33,000 volts, provided that adequate separation between the two services can be sustained, maintenance and the provision of good telephone service over a period of years may prove a serious and expensive problem. It is our honest opinion that the separate pole line in this case will prove advantageous.

In October, 1946, the Plant Committee of the United States Independent Telephone Association prepared a report on the joint use of poles for power and telephone service. The following is quoted from that report:

"The committee does not wish to declare itself against rural joint use for Independent telephone companies, but does suggest that they carefully weigh not only the costs of rural joint use construction as compared to a separate pole line before entering into this type of construction, but also consider its several disadvantages.

"When telephone and power wires of the multi-grounded type are carried on the same pole line for more than a few hundred feet, high voltages are induced on the telephone wires. While these can be reduced with drainage networks, this sets up a longitudinal noise current flow in the two sides of the telephone circuit. Any serious electrical unbalance such as that often found in central office equipment or a high resistance line wire splice will cause an increase in noise level on telephone lines closely coupled to power lines as in the case with rural joint use. It is, therefore, the committee's recommendation that Independent companies 'hold off' on this type of joint plant until the full results and conclusions on the current experiments now being conducted are known."

One such experiment is a line 16 miles in length where telephone open wire was placed on poles with a 7,200 volt power line. It is understood that this line has rendered good service both from a noise and safety standpoint over a period of several years. We do not, however, have any case histories on joint construction on voltages as high as 33,000 and experiments along this plan are not recommended when a separate pole line will be provided by the power company to carry the rural line.

V V

»Cables have been made with 2,100 pairs of wires.

• • •

»The gain in telephones in one year, 1947, was greater than the total number in use throughout the world 25 years after Alexander Graham Bell made his historic invention.

Courts and Commissions

Two North Carolina Companies Receive Rate Increases

The North Carolina Utilities Commission on Jan. 28 granted two telephone companies permission to increase rates.

The Old Town (N. C.) Telephone Co. was authorized to increase its residence rates 25 cents and its business rates 50 cents at its Rural Hall exchange which will provide an increase in revenue of about $1,000 a year (TELEPHONY, Jan. 29, p. 30). At Rural Hall the monthly charges now are: Business one-party $3.00; two-party $2.65; rural line $2.50. Residence, one-party $2.25; two-party $2.00; rural line, $2.00.

The Cooleemee (N. C.) Telephone Co. was allowed to raise its residence rates 50 cents a month and its business rates from 50 to 75 cents a month (TELEPHONY, Jan. 29, p. 24).

The increases at Cooleemee will up the company's income by approximately $100 a month, setting rates as follows: Business one-party, $4.25; two-party, $2.50; four-party, $2.50. Residence one-party, $3.25; two-party, $2.75; four-party, $2.25.

V V

Rhode Island Court Halts New England T&T Rate Rise

The Rhode Island Supreme Court has stayed, until further order, the recent decree of Superior Court Judge G. Frederick Frost giving emergency rate relief to the New England Telephone & Telegraph Co. (TELEPHONY, Jan. 29, p. 28). The Frost decree would have permitted the company to install, on a 24-hour notice, increased rates which would have added $1,113,000 annually to its revenues.

The state supreme court heard arguments for two hours before reaching its decision to order a stay. Eugene J. Phillips, counsel for the company, asserted that it was losing $3,100 a day under present rates in Rhode Island intrastate operations. Laurence J. Hogan, chief counsel for the state, denied the company's claim of "confiscation." He maintained that under Rhode Island utility laws, once a rate schedule is put into effect it can be changed only by cumbersome methods calling for new hearings and complex legal delays.

He contended that no serious harm could come to the company by following the established procedures, and questioned the New England T&T's estimate of daily losses.

V V

Rules Publishing a Classified Book Not a Public Service

In publishing a classified directory, a telephone company does not perform an essential public service except with respect to ordinary listings therein, according to a New York Supreme Court decision which sustained the refusal by the New York Telephone Co. to accept advertisements from the Abco Moving & Storage Corp. *(Abco Moving & Storage Corp. v. New York Telephone Co.).*

The plaintiff corporation had requested that an injunction *pendente lite* be issued to restrain the telephone company from declining its advertisements. In denying the motion, the court held that the refusal of the New York Telephone Co. had not been arbitrary as it had submitted "sufficient facts to show that it acted reasonably in so refusing because of recent events involving the president of the Abco corporation in connection with a similar business."

V V

John B. Conly Reappointed To Pennsylvania Commission

Appointment of John B. Conly as a member of the Pennsylvania Public Utility Commission for a new 10-year term was announced Jan. 26 by Gov. James H. Duff.

A member of the commission since Apr. 22, 1947, Mr. Conly was originally named by Governor Duff to fill an unexpired term which will end Apr. 1 of this year. The new appointment will run until Apr. 1, 1959.

Mr. Conly is a lawyer and a veteran of World War II.

Four Independents, Bell Get Increases in Georgia

Four Independent telephone companies received approval for increasing rates by the Georgia Public Service Commission on Jan. 19. The Southern Bell Telephone & Telegraph Co. also received authority to place into effect higher rates at two of its exchanges when they have been converted to dial operation.

The Alma (Ga.) Telephone Co. was authorized to charge the following rates at Nicholls, upon conversion of that exchange to dial:

	Present Rates	*Dial Rates*
One-party business	$3.00	$3.50
Two-party business	2.50	3.00
Four-party business	1.75	2.75
One-party residence	2.00	2.50
Two-party residence	1.75	2.00
Four-party residence	1.50	1.75
Rural bus. (0-2 Mi.)		3.00
Rural res. (0-2 Mi.)		2.00
Rural mileage charges:		
Two-four miles		0.25
Four-seven miles		0.50
Seven-10 miles		0.75
Over 10 miles		1.00

The commission found that the new rates would increase the company's net income from $577.56 to $742.56, which would produce a 6.49 per cent return on an investment of $11,441.26 after conversion to dial.

The Trion (Ga.) Telephone Co., which had been operating at a substantial loss, was permitted to place the following higher rates into effect:

	Present Rates	*New Rates*
One-party business	$3.00	$3.50
Two-party business	2.50	3.25
Three-party business	2.50	3.00
One-party residence	2.00	2.50
Two-party residence	1.50	2.25
Three-party residence	1.50	2.00

The commission found that the gross plant value was $18,112.36, and after deducting accrued depreciation of $9,097.79, and adding $462 for materials and supplies, the net investment would be $9,476.57. The commission also found that the company operated at a deficit of $6,142.67 in the 11 months

ending Dec. 4, 1948. It was estimated that the new rates would increase annual revenue by $2,430, although they would still fail to give the company any return on its net investment.

The following rate increases also were granted to the Gray (Ga.) Telephone Co. and Haddock Telephone Co., both owned by R. L. Lineberger:

	Present Rates	*New Rates*
One-party business	$2.75	$3.75
Two-party business	2.25	3.25
One-party residence	1.75	2.75
Two-party residence	1.75	2.50
Four-party residence	1.75	2.25
Rural bus. (0-5 mi.)	2.25	2.75
Rural bus. (5-10 mi.)	2.25	3.00
Rural res. (0-5 mi.)	1.75	2.25
Rural res. (5-10 mi.)	2.25	3.00

Mr. Lineberger testified that the original cost of investment in the plant of both exchanges was $27,282.15 and that the combined net income for the year 1948 was $2,463.96. He also testified the annual increase in revenues from requested rate increases would amount to $2,229.

However, the commission stated that consideration should be given to depreciation. With no accurate records available, the commission estimated accrued depreciation to be 15 per cent of gross plant value or $4,092.32 which, deducted from gross plant value of $27,282.15, resulted in net plant value of $23,189.83. An amount of 4 per cent of gross plant value of $27,282.15 or $1,091.28 was allowed as annual depreciation expense and an amount of $2,100 per annum was allowed as salary to Mr. Lineberger, as no salary for his services appeared as an operating expense.

The above adjustments in the company's operating expenses resulted in a pro forma deficit of $727.32. The new rates allowed by the commission will increase revenues by $2,193 which, together with a decrease in allowance for uncollectibles of $369.62 would result in a net income of $1,835.30, which indicates a rate of return of 7.9 per cent on the net investment of $23,189.83, the commission stated.

The Southern Bell company was authorized to place the following new rates into effect at Buford and Hazelhurst, upon conversion of those exchanges to dial:

BUFORD:

	Present Rates	*New Rates*
One-party business	$3.50	$4.50
Two-party business	2.75	3.75
Four-party business	2.25	3.00
One-party residence	2.00	2.50
Two-party residence	1.75	2.00
Four-party residence	1.50	1.75
Rural bus. (0-2 mi.)	2.50	2.75
Rural res. (0-2 mi.)	1.75	2.00

HAZELHURST:

	Present Rates	*New Rates*
One-party business	$3.50	$4.25
Two-party business	2.75	3.50
Four-party business	2.25	2.75
One-party residence	2.00	2.25
Two-party residence	1.75	2.00
Four-party residence	1.50	1.75
Rural bus. (0-2 mi.)	2.50	2.75
Rural res. (0-2 mi.)	1.75	2.00

V V

Takes Tennessee Bell Rate Case to High Court

The controversy as to whether or not Southern Bell Telephone & Telegraph Co. can keep its higher rates in Tennessee rests now on the doorstep of the state supreme court.

The Tennessee Railroad & Public Utilities Commission on Jan. 25 asked the high court to review a decision by the state court of appeals awarding the increase (TELEPHONY, Jan. 1, p. 28).

The appeals court granted a 16.27 average raise on local and intrastate long distance calls within the state on a temporary basis last summer and later made the increase permanent in September.

The company began its fight for higher rates in Tennessee more than a year and a half ago. It filed a proposed rate increase with the commission in June 1947, but the commission suspended the increase and later denied it. The company went to court with the matter and won in both chancery court and the court of appeals.

V V

Transfers Tennessee Company's Rate Hearing to Johnson City

Hearing on a rate increase for the Inter-Mountain Telephone Co., Bristol, Tenn., has been transferred from Nashville to Johnson City, the Tennessee Railroad & Public Utilities Commission announced recently. The hearing was set for Jan. 26 at the Johnson City courthouse.

A plea for higher rates was filed Dec. 22 by the company. The average increase would amount to 16 or 17 per cent of the present rate, it is estimated.

V V

Authorizes $50,000 RFC Loan For Columbia Utilities Co.

The Oregon Public Utilities Commissioner on Jan. 20 authorized the Columbia Utilities Co., Medford, to borrow $50,000 from the Reconstruction Finance Corporation, with promissory notes to be issued as security. The company was also ordered to file a verified monthly statement of its expenditures from the proceeds of the loan. Maturity dates were extended ten years on present outstanding notes, and eight years on first mortgage bonds.

An additional $25,000 in unsecured promissory notes, to be issued to D. O. and E. R. Hood, owners, was also permitted by the commissioner. Proceeds of the loan are to be used to retire the company's indebtedness.

V V

Michigan Commission to Have Jurisdiction Decided

The Michigan Public Service Commission has halted hearings on the Michigan Bell Telephone Co. petition to raise rates $20,000,000 annually, calling for a state supreme court ruling on the commission's right to proceed with the case.

Chairman Stuart B. White said he will ask the attorney general to seek a court decision on whether the commission can conduct hearings on a rate increase request while a three-year-old rate reduction order is tied up in litigation (TELEPHONY, Oct. 16, p. 32).

James H. Lee, assistant Detroit corporation counsel, moved for commission dismissal of the current proceedings. He pointed out that a 1945 commission order to reduce Michigan Bell rates $3,500,000 annually had been appealed by the company. The case still is pending in Ingham County Circuit Court.

Mr. White denied Mr. Lee's motion to dismiss or adjourn the present case, declaring he would like a "clear-cut" decision to settle commission jurisdiction over rate matters "once and for all."

V V

Bell Asks Reopening of Georgia Rate Case

The Southern Bell Telephone & Telegraph Co. on Jan. 20 made another appeal to the Georgia Public Service Commission for higher rates throughout the state (TELEPHONY, Jan. 1, p. 28).

The company is asking the commission for a re-hearing in the month-long rate case in order that the company may be heard as well as present evidence to substantiate its appeals for more revenue than was provided by a rate increase granted it on Jan. 10.

The petition asked also that the commission's rate increase order of Jan. 10, be amended to meet objections set forth in the document.

These objections are based on the company's contention that the rate increase granted Jan. 10 did not yield the full amount the commission said it would. At the time the increase was

granted, the commission prescribed rates which it said would produce $1,493,000 additional revenue per year.

The company earlier had asked for a rate structure which would produce $3,055,600 additional revenue per year, a figure which the company maintained was necessary to "prevent confiscation of its property because of inadequate rates."

Walter McDonald, chairman, said the commission would decide whether to reopen the case after the company has had an opportunity to present its side at oral arguments when the petition is heard.

V V

Plan to Take Alabama Bell Case to Supreme Court

Circuit Judge Walter B. Jones' ruling on Jan. 19, granting the Southern Bell Telephone & Telegraph Co. rate increases in Alabama, amounting to $2,530,000 annually will be appealed to the state supreme court, Gordon Persons, president, Alabama Public Service Commission, recently stated (TELEPHONY, Apr. 3, p. 31, 1948).

The commission had previously denied the company's request for an increase in rates.

Appealing from the commission's ruling, the telephone company was granted authority some time ago by Judge Jones to put the increased rates into effect pending the outcome of the case.

V V

Bills Affecting Utilities' Returns Up in Three States

A bill intended to limit public utilities to a 4½ per cent return on their investment was introduced Jan. 27 in the New Hampshire legislature by Senator Eugene S. Daniell, Jr., Franklin.

The proposed legislation presumes that returns of more than 4½ per cent on utility investments are unreasonable and would place the burden of proof upon the utility to show otherwise.

Senator Daniell introduced a somewhat similar proposal in the New Hampshire state constitutional convention last spring but it was killed in committee.

In Michigan, a resolution proposing creation of a special committee to investigate returns of public utilities was introduced Jan. 24 in the House of Representatives by Rep. William S. Broomfield, Royal Oak.

The differences between rates of return on private investments and those accorded to public utilities, the resolution asserted, "seem to be unwarranted and unjustified and should be investigated with a view to adjustment."

Representative Broomfield said the return on capital investment of public utilities is now at approximately 6 per cent while for a number of years private investors have been unable to obtain return on safe investments comparable to public utilities at more than 2 to 4 per cent and that the return on government bonds averages about 2½ per cent.

The resolution was introduced shortly after Governor Williams announced intention of conferring with utilities, consumers and the staff of the Michigan Public Service Commission regarding utility rate increases.

A bill to define "confiscation of property" in the regulation of public utility rates was introduced Jan. 26 in the Georgia legislature by Rep. Vaughn Terrell, Floyd.

The measure provides that unless a utility is earning less than 4 per cent on its investment, its rates cannot be considered so low as to represent confiscation.

Mr. Terrell said the bill was aimed at "preventing rate squabbles such as were recently witnessed between the Southern Bell Telephone & Telegraph Co. and the public service commission."

The telephone company had charged that rates allowed by the Georgia commission were "confiscatory."

V V

Nebraska Commission Studies New Code of Practice

The Nebraska State Railway Commission was to have held a conference Feb. 9 with representatives of the various interests under its jurisdiction, at which time a new code of practice and procedure before that body was to have been submitted for discussion.

The commission has been working since 1908 under rules adopted when it was first organized, and Chairman Walter F. Roberts says that an attempt has been made to streamline and clarify procedure so that the various matters coming before it may be more promptly and efficiently handled.

In accordance with a finding of the supreme court, practice before the commission is limited to attorneys admitted to practice in Nebraskan courts. Individuals may appear on their own behalf, but may not represent other parties in hearings. In the main the code of civil procedure in use in the state courts is followed, and in the absence of a rule or order of the commission covering any specific matter that code will be applied, including depositions, discovery and pre-hearing conferences.

V V

Missouri Commission Grants Bell Rate Increase

The Missouri Public Service Commission recently voted 3 to 2 to allow the Southwestern Bell Telephone Co. to increase rates in that state by $3,250,000. The increase is on a "temporary or experimental basis," and is calculated to yield a return of 5.27 per cent on original investment. The city of Kansas City wanted the return restricted to 4.23 per cent and the city of St. Louis wanted it cut to 5 per cent.

The commission followed its regulatory policy on depreciation by using an undepreciated rate base, but requiring the company to pay its consumers (through deductions from operating expenses) a 3 per cent return on the funds in the depreciation reserve used by the company for other purposes. The commission cut the annual depreciation rate to 3.5 per cent as against 3.9 per cent (of the rate base) sought by the company.

V V

Orders Telephone Installed

The Southwestern Bell Telephone Co. was ordered by the Oklahoma Corporation Commission on Jan. 26 to install a telephone in the Sapulpa residence of G. W. Hellerd. The commission found that the Hellerd home is in territory claimed by the Bell company.

V V

FCC Approves Sale

The Federal Communications Commission on Jan. 26 issued an order approving the acquisition by the Carolina Telephone & Telegraph Co., Tarboro, N. C., of the plant and property of the Columbus Telephone Co., which operates in Columbus County.

V V

Summary of Commission Rulings and Hearings

California Public Utilities Commission

Jan. 18: Hearing on application of Santa Paula (Calif.) Home Telephone Co. to enter reproduction cost less depreciation reserve according to a 1947 appraisal in its books.

Jan. 18: Hearing on application of West Side Telephone Co. for authority to increase rates.

Jan. 18: Hearing on application of McCloud (Calif.) Telephone Co. for extension of time in which to file information regarding authority to increase rates.

Kansas Corporation Commission

Feb. 14: Hearing on application of

(Please turn to page 47)

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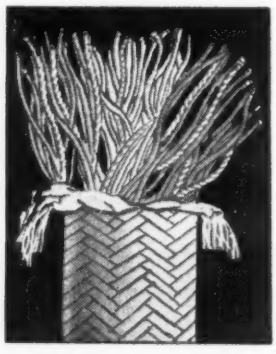

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A. G. KIESLING presents WALTER DAKIN with bound volumes of house organs of the Illinois Commercial and Commonwealth telephone companies. Left to right: HOWARD MORAN, Commercial superintendent; Mr. Dakin; Mr. Kiesling, general auditor, and MRS. DAKIN.

Employes Honor Walter Dakin Upon His Retirement

A farewell party honoring Walter Dakin, retiring president of Commonwealth Telephone Co., Madison, Wis., and of Illinois Commercial Telephone Co., Springfield, Ill., was held in Madison, Dec. 20. At the party, Mr. Dakin was presented with a 14-foot boat that fitted in nicely with an outboard motor presented to him earlier in December by the employes of the Illinois Commercial Telephone Co. In addition to the boat, Mr. Dakin received bound volumes of the house organs of both companies and an album of pictures taken during his years as president of Commonwealth.

Mr. Dakin has been succeeded as president of Commonwealth and Illinois Commercial companies by B. W. Saunders of Springfield, Ill. T. Holden Moran will be vice president and general manager of the Commonwealth Telephone Co., while Mr. Saunders will continue as general manager of Illinois Commercial Telephone Co.

Mr. Dakin was born in Chicago, Ill., and lived there until he had completed his grammar school education. The family then moved to Elgin, Ill., where he attended high school. He then spent one year at the University of Illinois and transferred to Dartmouth College, where he received his degree in civil engineering.

His first job in the telephone industry came in 1906, when he accepted a position with the old Chicago Telephone Co. as a time and material keeper on underground construction. Later on, he was made an underground construction foreman and then division facility clerk. His next promotion was to division plant engineer and assistant division general foreman in charge of underground conduit and cable construction and maintenance, and finally to chief city inspector.

In 1912, he was transferred to the chief engineer's office as plant engineer of the Chicago Telephone Co. From this company, he was moved to the chief engineer's department of the central group Bell companies, and, in 1914, he was made field supervisor of inventories and appraisals in the states of Ohio, Michigan, Indiana, Wisconsin, and Illinois, and later was appointed appraisal engineer and a member of the chief engineer's staff. In 1927, he accepted the position of general plant superintendent with the Commonwealth Telephone Co. and its associated telephone companies.

After a two years' absence, he returned to the General Telephone System. In 1944, he was elected vice president and director and appointed chief engineer. On the retirement of the late J. F. O'Connell in the spring of 1945, he became president of the Commonwealth and Illinois Commercial companies.

V V

OBITUARIES

ALFRED O. STIGBERG, veteran Stromberg-Carlson employe who retired two years ago, died recently. Mr. Stigberg had been in failing health for several weeks.

A native of Sweden, he came to the United States at the age of 10. His family settled in Chicago where he secured his first telephone job.

Before his retirement he had spent more than 60 years in the telephone business, 45 of them with Stromberg-Carlson. He was hired by the late Alfred Stromberg before the firm moved from Chicago to Rochester.

Mr. Stigberg had at different times been superintendent of the switch-

board department, superintendent of the scheduling department, and had worked in both the government sales and the telephone sales departments. At the time of his retirement he was a sales correspondent.

He is survived by his widow, Mrs. Mary E. Stigberg; two daughters, Mrs. E. R. Jacobson of Chicago, and Miss Mildred A. Stigberg of Rochester.

• • •

DR. REGINALD LAMONT JONES, New York City, vice president of Bell Telephone Laboratories, and one of the nation's distinguished scientists, died Jan. 14 at his home in Summit, N. J., after a brief illness. He was 62 years old.

During his 38 years of service with the Bell System, he made many important contributions to the advancement of telephony.

Dr. Jones was born Feb. 28, 1886 in New York. After receiving his B.S. degree from Massachusetts Institute of Technology in 1909, his M.S. in 1910 and the D.Sc. in 1911, he joined the Western Electric Co.'s engineering department. This department later became Bell Telephone Laboratories.

Dr. Jones' early work related to telephone transmitters, receivers, repeaters and various transmission problems.

In 1914, he was placed in charge of Western Electric's transmission laboratory. During World War I, he was a captain in the Signal Reserve Corps, and guided research on communications systems for the military.

Returning to civilian duties, he was appointed inspection manager in 1923, and organized what was probably the first industrial group engaged in scientific quality control. After Bell Laboratories was organized in 1925, he added the outside plant development department to his work in inspection engineering. In 1928, he became director of apparatus development and in 1944 was appointed to his position as vice president.

Besides his widow, he is survived by a daughter, Mrs. Donald Fuchs of New York; two sons, Reginald Lamont, Jr. and Peter Babcock Jones, both of Summit, N. J., and two sisters, Mrs. Arthur I. Loheed of North Middleboro, Mass., and Mrs. Walter S. Tower of Darien, Conn.

V V

Small Oklahoma Company Makes Extensive Improvements

The Callaham Telephone & Electric Co., Broken Bow, Okla., owned by S. B. Callaham, has just completed the conversion of the Broken Bow exchange from magneto to common battery operation and has moved its offices to its new fire-proof, air-conditioned office building. The offices formerly were located upstairs in another building.

The company also has moved all poles, wires and cables from the streets to alleys. It also is installing a carrier system to connect its lines to those of the Southwestern Bell Telephone Co. The total cost of the improvement program was $24,000.

The company plans to cut over its Foreman, Ark., exchange to common battery as soon as equipment is available. Mr. Callaham stated that rate increases, which he finds the public is willing to pay for improved service, have been approved.

V V

>>More than 60 per cent of all the world's telephones are dial operated. It is interesting to note that Greece leads all other countries in the use of dial systems. Nearly 98 per cent of all telephones in Greece are dial.

• • •

>>Canadians out-talked all other nations except Americans in 1947, holding 3,844,000,000 conversations as compared with 45,300,000,000 held south of the border. The Japanese were in third place.

That's what you'll be able to do with this new LEICH Wall-Desk Handset. For it's the only handset that can be used as either a wall or desk model. There's no changes . . . no additions . . . no extras to stock or buy. Write today, for more complete information.

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Federal ANNOUNCES ITS 2ND REVENUE-PRODUCING EQUIPMENT

OFFERED TO THE TELEPHONE INDUSTRY UNDER FEDERAL'S

Direct to Customer Selling Plan

FOR MEETING URGENT EQUIPMENT PROBLEMS

Federal's 9-H-1 SHORT HAUL CARRIER TELEPHONE SYSTEM

Especially designed to meet the service requirements of independent operating companies—large and small

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1 **PLAN A:** Priced as low as $660 per terminal (first channel) FOB Clifton. Two terminals required per channel. This price is below that of other available equipment providing comparable facilities.

PLAN B: Federal will lease this equipment, if desired, for 36-month periods.

2 **60 DAYS' TRIAL, IF DESIRED,** to prove performance and revenue-producing possibilities. Unless performance meets your requirements, the equipment may be returned at our expense—and no charge will be made.

3 **IMMEDIATE DELIVERY** on standard equipment. Deliveries can be arranged to meet your requirements for special systems.

OUTSTANDING ADVANTAGES:

- **COSTS LESS than 5 miles of new line on present poles**
- **SMALLEST SIZE—occupies only 7" of vertical rack space**
- **COMPACT—completely self-contained unit**
- **EASILY INSTALLED on table, wall, standard relay rack or pole**
- **OPTIONAL STRAPPING added and tested in factory**
- **STACKABLE up to 3 channels for each existing line**
- **BUILT-IN DIALING—local or toll with full supervision**
- **RANGE—approximately 150 miles for first channel**
- **FLEXIBLE—adaptable for ringdown, common battery or dial operation**
- **COORDINATES with other carrier telephone systems**

The following associated equipment is available if required to complete your installation

Mounting—Table (shown opposite) per terminal . . . $30.00
Wall, per terminal 21.00
Wide choice of low-cost or standard relay racks . . . . . Prices on Request

Federal W241-22 Filter Panel per Group I—equipped with two Group II filters to transfer up to three channels from one circuit to another or around drops . . . 172.00

Instruction Book . . . . . No Charge

Federal Type 906 Bridging Filter—to prevent mutual interference between carrier and bridged party line stations or branch lines $33.50

Relay Applique Circuits to adapt switchboard dialing circuits to carrier operation: When such are required—and upon receipt of full engineering details—Federal will design them to suit your local conditions.
Prices on Request

Set of spare tubes and fuses 3.50

All prices subject to change without notice

Act Now! 1, 2 or 3 new circuits can quickly be yours under Federal's Direct-to-Customer Selling Plan! *Tell us your requirements and line facilities—or request a copy of our "Carrier System Data Questionnaire". Write to Telephone Sales Department.*

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ecomes Vice President of Three Western Companies

P. A. Nenzel has been named vice resident and general manager of the California Water & Telephone Co., Monrovia, according to a recent announcement. He was also elected to he California company's board of directors, and vice president and director of the West Coast Telephone Co., Everett, Wash., and of the Southwestern States Telephone Co., Brownwood, Tex.

Mr. Nenzel has spent his entire adult business life with public utilities and has worked in one way or another in practically all divisions of utility operations.

Born in Muenster, Saskatchewan, Canada, he came to the United States at the age of eight. In later years he worked in the gold and silver mines of Nevada and in Northern California lumber mills.

In 1919 he and his family moved to San Francisco and in 1920 Mr. Nenzel joined the old California Railroad Commission as file clerk. Advancing rapidly, he soon became chief clerk of the engineering department and then assistant engineer working on formal complaints, rate investigations, valuations and traffic studies.

In October, 1926, he joined Loveland Engineers and has been associated with some division of that organization ever since. Before Loveland Engineers took over its telephone and water systems and organized them into one operating unit, Mr. Nenzel worked on valuations, rate structures, financial problems, etc., in connection with the operations of all types of utilities, including telephone, water, gas, and electric companies.

When the California Water & Telephone Co. was organized in 1935, he became active in general management problems of both the water and telephone divisions.

V V

Eastern and Midwestern Television Networks Opened

Four of the biggest names in television, the heads of the most important broadcasting chains, the mayors of New York and Chicago, and the chairman of the Federal Communications Commission took part in the program when Leroy A. Wilson, president, American Telephone & Telegraph Co., turned over the interconnected eastern and midwestern television networks of the Bell System to the television industry on Jan. 11.

More than 30 television stations in the 14 major cities on the combined networks, which stretch from the Atlantic to the Mississippi, were on the air with the opening program from 8:30 until 10 p.m.

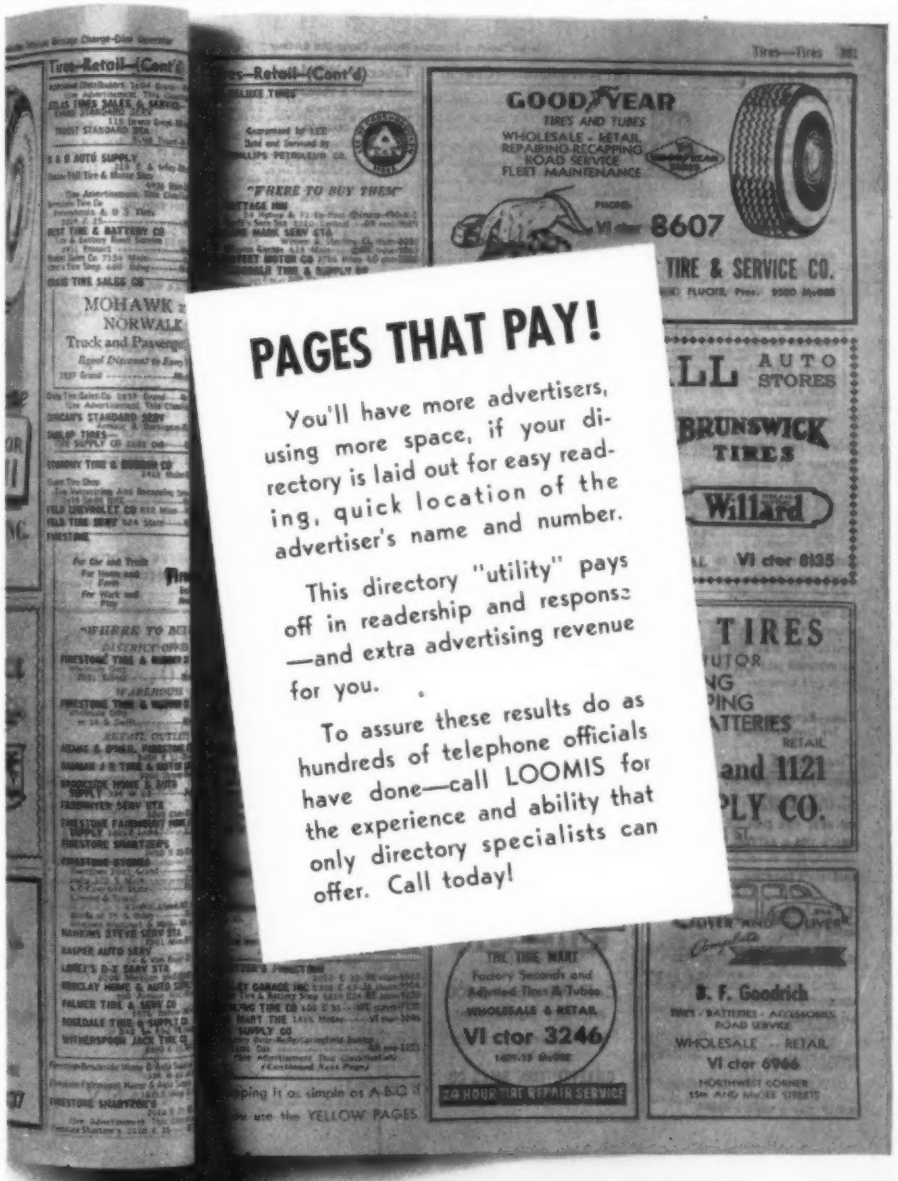
The inaugural ceremonies starting the television hit parade began in New York City, where the new 2,100-mile network was described and pictured in a new film. Next, the viewers picked up Washington, where Wayne Coy, FCC chairman, congratulated the participants on their achievement in bringing inter-city television to an area in which one-quarter of the nation's population lives. Mr. Wilson, in New York City, then presented the facilities to the presidents of the broadcasting companies.

Discussing various phases of the industry, Dr. Allen B. Dumont, of the Dumont Laboratories; Niles Trammell, of the National Broadcasting Co.; Frank Stanton, of the Columbia Broadcasting Co., and Mark Woods, of the American Broadcasting Co., appeared.

Finally, Mayor William O'Dwyer, in New York City, and Mayor Martin Kennelly, seen in Chicago, felicitated those responsible for the occasion.

Quarter-hour entertainment features, sponsored by each chain, followed with popular entertainers, music, dancing, personalities in the news and a dramatic skit.

In addition to New York, Washington, and Chicago, the Bell System's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You'll have more advertisers, using more space, if your directory is laid out for easy reading, quick location of the advertiser's name and number.
This directory "utility" pays off in readership and response—and extra advertising revenue for you.
To assure these results do as hundreds of telephone officials have done—call LOOMIS for the experience and ability that only directory specialists can offer. Call today!
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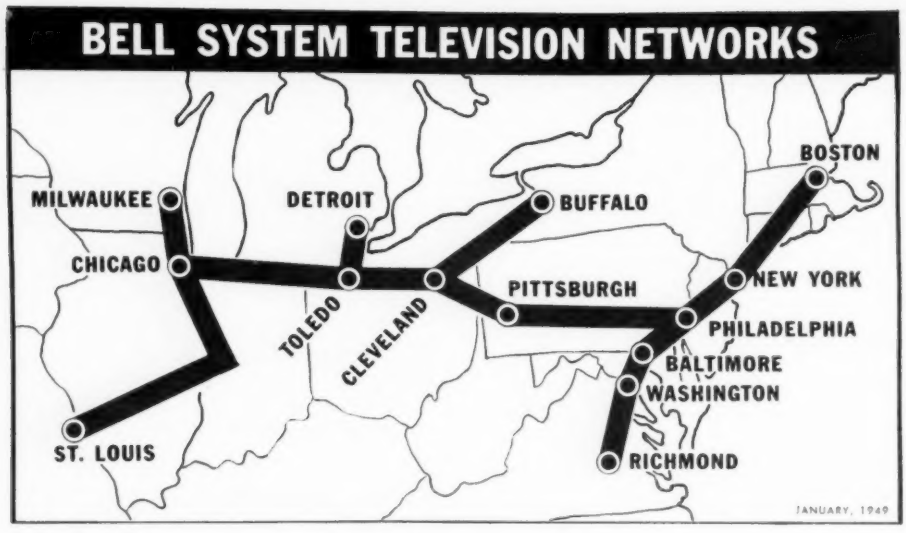

combined networks link television stations in Boston, Philadelphia, Baltimore, Richmond, Pittsburgh, Buffalo, Cleveland, Toledo, Detroit, Milwaukee, and St. Louis by coaxial cable and radio relay. The completion of a link between Philadelphia and Cleveland, via Pittsburgh, has made possible the joining of the two networks now in operation.

V V

>>No bologna was a compliment paid recently to toll operators in Cleveland, Ohio. A local butcher, pleased with their "very fine service," sent them a savory salami. The girls just ate it up.

V V

Dial + Projector = Hybrid Mechanical Brain—So He Says

Allan M. Haley, Los Angeles, Calif., city design engineer, has married a telephone dial to a film projector and come up with a mechanical hybrid that will do brain work.

It all began 13 months ago with his idea for saving city engineers time and trouble in looking up sine and cosine figures in trigonometric calculations. Now he sees in it endless possibilities in the business world where records are kept.

Mr. Haley reports that city officials have beamed upon it as an improvement over present machines used in examining microfilmed records. His machine, he explains, will bring the desired information in the proverbial shake of a lamb's tail—eliminating the scanning of film now necessary.

The gadget works much like a telephone dial. You dial the symbol for a given frame of the microfilm, the machine runs the reel to that frame and—presto!—the light goes on and the recorded information is on view.

Mr. Haley says it could be used on any microfilmed material, such as public records, motor vehicle department records and statistical material.

V V

>>Twice as many long distance telephone messages speed from coast to coast in a day now than did in a week in 1940. Transcontinental conversations are running about 8,600 a day.

Harder to see . . .
Harder to hit . . .

You can cut down malicious breakage by using Armstrong's Glass Insulators. Made of clear glass, they are hard to see against the sky and a difficult target for amateur marksmen to hit with shot or stone.

Both in laboratory test and actual use, Armstrong's Glass Insulators prove stronger than the pins that support them. They withstand the strain of ice-loaded lines, are practical on long spans, and are proof against extremes of thermal shock.

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Plant Training Supervisor, Southern Bell Telephone & Telegraph Co.

Volume I is a simple yet comprehensive treatment of the normal thought process applied to engineering problems. This volume also sets forth the principles of logical analysis in the light of emotional bias and other disruptive factors and explains how these may be applied, in writing, to engineering presentations.

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In the Nation's Capital

(Continued from page 22)

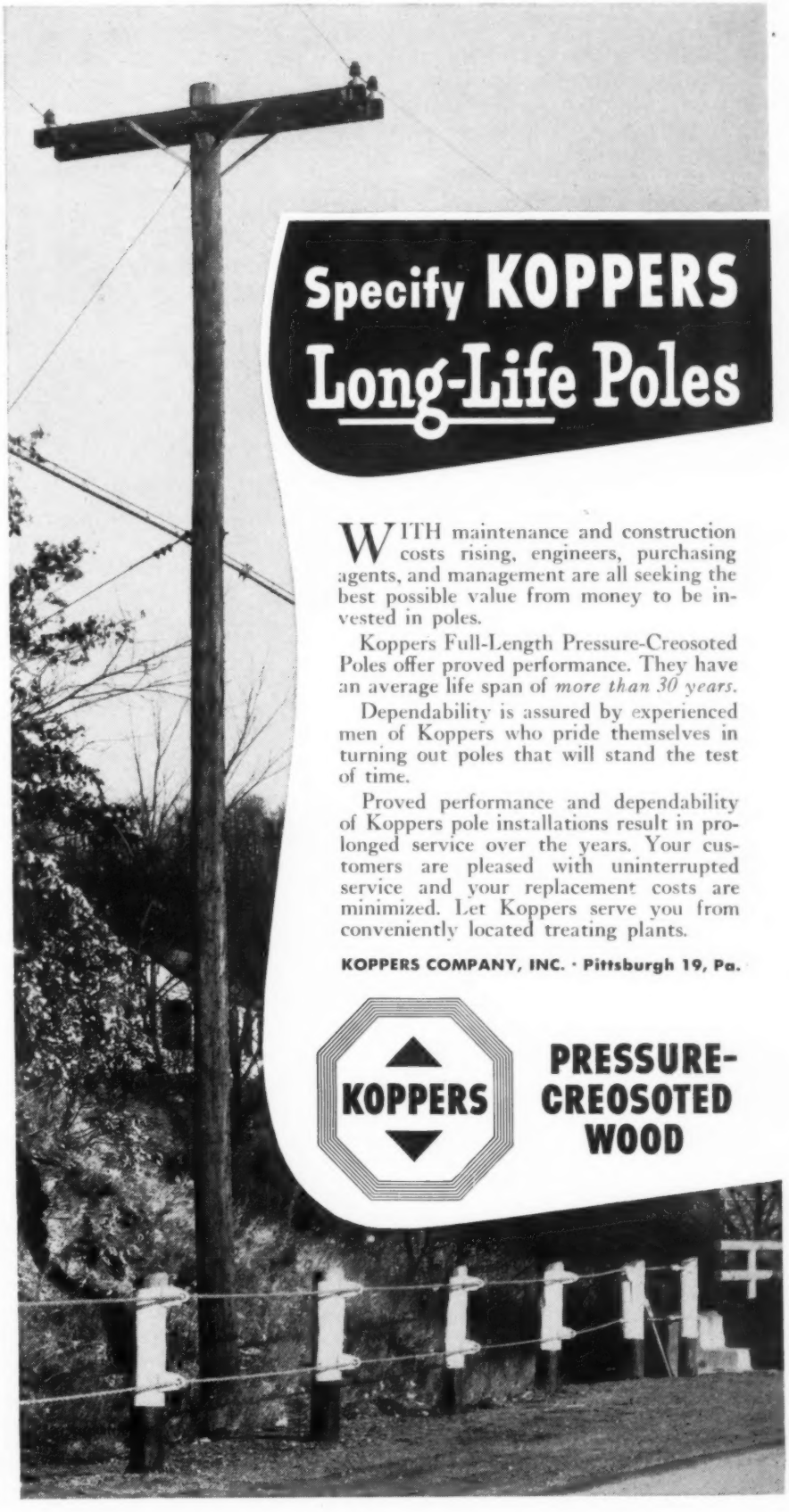
The FCC and the Michigan Public Service Commission (through their respective staffs) have been getting together. The FCC was able to release, in connection with its announcement of depreciation rates for the Michigan Bell Telephone Co., a telegram from the Michigan commission as follows:

"The Michigan Public Service Commission does not interpose objection to the Federal Communications Commission's proposed action to prescribe for the Michigan Bell Telephone Co. depreciation rates which have been developed as a result of joint conference between the staffs of the Federal Communications Commission and the Michigan Public Service Commission. This communication not to be taken or construed as any bar or waiver of this commission's right or authority to adjust lump sum amount of depreciation as operating expense for rate-making purposes in pending or any other rate case before us."

The depreciation rates were prescribed for Michigan Bell on the basis of studies made early in 1948 by the FCC staff in cooperation with the staff of the Michigan commission. Similar studies have been in progress in respect to several other Bell telephone companies. Depreciation rates applicable to the Michigan Bell plant are expected to produce as deductible depreciation expenses for 1949 approximately $11,-000,000. This is a reduction of about $750,000 when compared with the expense of nearly $11,750,000 which would have accrued under the rates proposed by Michigan Bell.

The FCC definitely stated that the depreciation reserve (an accumulation of amounts annually charged for depreciation expenses) should be "deducted from plant investment as a step in determining the 'net investment' on the basis of which a 'fair return' is also sought from telephone users." For the entire Bell System, the FCC estimated that these reserves amount to about $2½ billion or 31 per cent of the system's total plant investment of billion. The Michigan commission, as already noted, acknowledged its acquiescence with the views on depreciation taken by the FCC for Michigan Bell. However, other state commissions are known to follow another policy. The Missouri commission, for example, specifically declines to use a depreciated rate base—preferring instead to give the telephone users the benefit of a percentage return on the use (by the telephone company) of the funds in

For High Serviceability and Low Replacement Costs


Specify KOPPERS
Long-Life Poles
WITH maintenance and construction costs rising, engineers, purchasing agents, and management are all seeking the best possible value from money to be invested in poles.
Koppers Full-Length Pressure-Creosoted Poles offer proved performance. They have an average life span of more than 30 years.
Dependability is assured by experienced men of Koppers who pride themselves in turning out poles that will stand the test of time.
Proved performance and dependability of Koppers pole installations result in prolonged service over the years. Your customers are pleased with uninterrupted service and your replacement costs are minimized. Let Koppers serve you from conveniently located treating plants.
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the depreciation reserve for any other purpose.

The Missouri commission followed this practice in its recent decision (3 to 2) granting the Southwestern Bell Telephone Co. a $3,250,000 rate increase for that state. In actual practice, the FCC arrangement for deducting the depreciation reserve from net investment probably does not work out much differently than the Missouri practice. The reason is that a somewhat larger rate of return is generally allowed where a *depreciated* rate base is used, than in the case of the procedure followed by the Missouri commission. Of course, this stuff is awfully hard to follow in descriptive language; figures are necessary to show the difference clearly.

So, let us assume that the FCC was fixing rates for the whole Bell System on the figures given above. (This is a purely hypothetical example, by the way, although there are some Jeremiahs in Washington who say it won't be long before the federal government *is* regulating things all over the entire country at the rate things are going.) On an original cost rate base of $8 billion, reduced by a deduction of $2½ billion depreciation reserve, leaving a net rate base of $5½ billion, let us apply a return of 6½ per cent. This would yield an over-all profit of $357,500,000. But if we followed the Missouri commission practice and applied a 5½ per cent return to an *undepreciated* rate base ($8 billion) we would get a return of $440,000,000, which would be further reduced by 3 per cent of the depreciated reserve (3 per cent of $2½ billion equals $75,000,000) leaving a net profit of $365,000,000.

While this difference in practice—between the FCC and the Missouri Commission—is not considerable, the difference in theory is more important. The FCC practice makes depreciation virtually synonymous with amortization. It ties up the retirement of property to specified installments regardless of actual experience—which is expecting a lot, even from the cock-sure depreciation accountants. The Missouri practice at least has the virtue of keeping the depreciation factor out of the rate base until it is a fact—namely, a retired or charged-off property item. The FCC practice, by deducting depreciation reserves which are merely held in *anticipation* of a property retirement, is treating a promise as if it were a fact. This can lead to operating complications not very advantageous to management.

V V

John O'Day Retires From Wisconsin Bell

One of Wisconsin's best known telephone executives, Vice President John O'Day of the Wisconsin Telephone Co. retired Jan. 31. Mr. O'Day's resignation as an officer and a director was announced following the meeting of the board of directors held Jan. 25.

Mr. O'Day's retirement terminates a telephone career of over 46 years. He started in the business at Milwaukee in 1902 as a stenographer. During his long career he held various positions in the executive department, including that of secretary of the company. In 1922, he was elected vice president, and since 1924 has been a member of the board of directors. He has directed the company's personnel and public relations activities since 1927.

V V

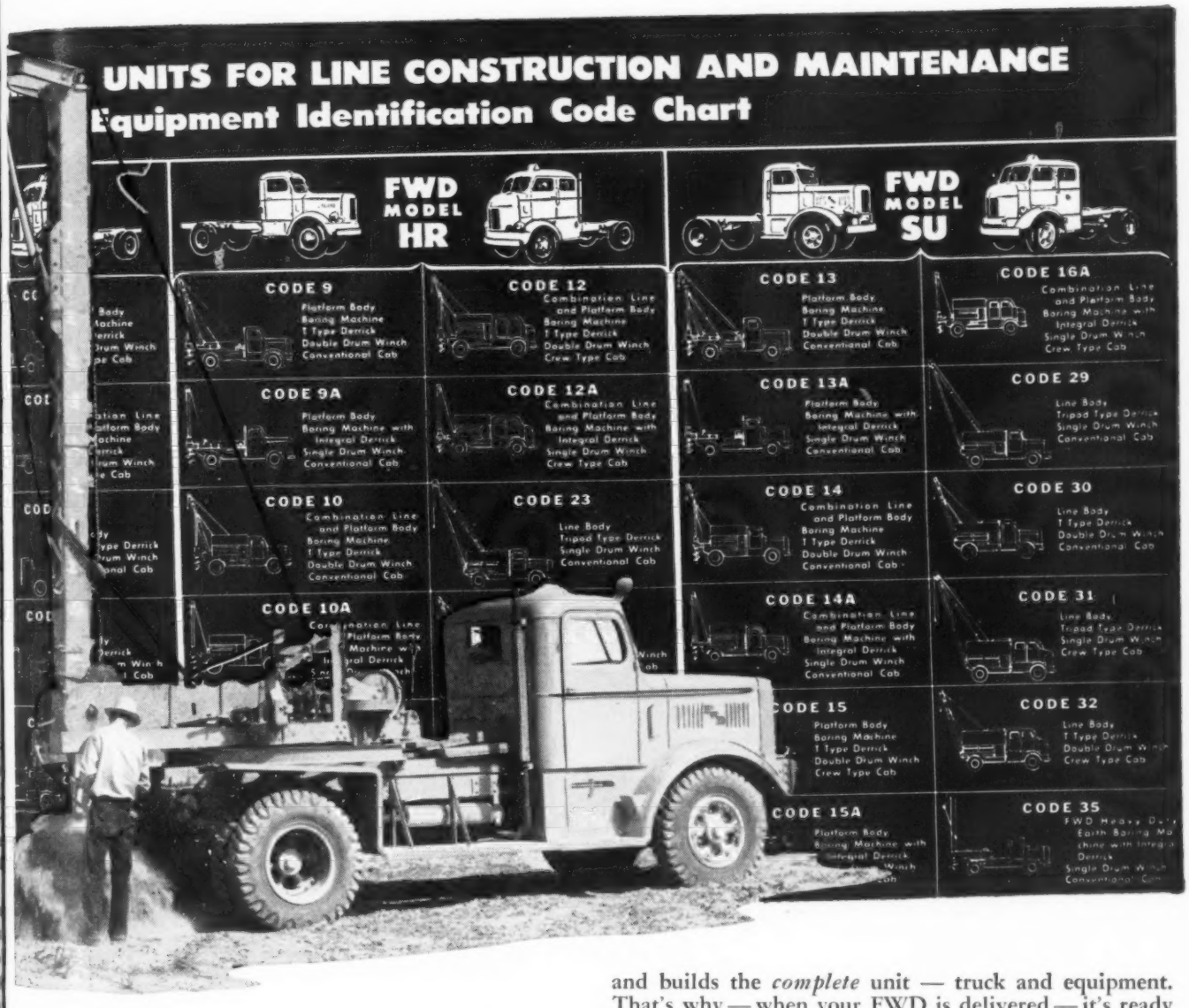
>>North Borneo has about 430 telephones, Somaliland 335, and French India, 72. Of the world total of more than 60,000,000, 96 per cent connect with the American telephone network.

• • •

>>At the turn of the century there was only one telephone for every 300 persons in the world.

Now it's easy to say Goodbye to Guesswork

You get the Right truck . . . the Complete truck . . . on just One Order . . . when you use FWD's simple BUILT-TO-CODE chart to select the FWD motorized unit you need



ONE UNIT . . . one order . . . one responsibility! Yes, FWD's handy *built-to-code* chart makes your selection of line construction and maintenance trucks that simple . . . that trouble-proof. And here's why —

You quickly see the 38 varying — yet standardized — combinations that are available and the specific equipment each FWD carries.

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TELEPHONE & SUPPLY CO.
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QUESTIONS AND TENTATIVE ANSWERS

TRAFFIC (Continued)

(23) Will licenses be required for traffic operators?

(A) It is not necessary to have traffic operators licensed for this service.

• • •

(24) Records of traffic volume to be made?

(A) The ticket record of calls, supplemented by special counts and register readings will provide the basis for obtaining nearly any sort of data required. A few of the analyses that might be made are as follows:

Volume of calls by class of service and by direction of call on each channel.

Distribution of calls through the day.

Per cent completed of calls made to and from the channel.

Length of conversation.

Call rate.

Per cent usage of channel.

Analysis of volume and distribution by types of business of users.

• • •

(25) When more than one channel is provided at a given mobile service office, how will the mobile station be assigned to the available channels?

(A) The chief consideration will be to equalize the load on the available channels. While numbers can be changed to relieve an unbalanced condition, this should be regarded as a last resort, and effort should be made to distribute the assignments of new stations in such a manner as to keep the load balanced. Best estimates available of a new customer's calling rate, size of fleet, time and size of busy hour demands, distribution of calls throughout the day, etc., will be considered. Generally speaking, best loading can be obtained by keeping a good cross-section of customers on each channel. This may mean distributing units of a particular fleet on several channels if doing so will not interfere with the customer's use of service.

650 DISTRIBUTORS FOR SPEEDY SERVICE!

Buckingham
LINEMAN'S SAFETY EQUIPMENT

In Buckingham's dictionary "SERVICE" is a by-word meaning:

1. 650 well-stocked distributors—each strategically located to serve you quickly and efficiently.

2. Constant product improvement—always designed to promote the safety and comfort of the lineman.

3. Production schedules geared to the increasing demand for Buckingham Equipment—assuring you on-time deliveries.

Buckingham experience dates back 50 years to the original Stephens Climbers—hallmark of quality in the utility field. Experienced craftsmanship like this is your guarantee of safe, durable and economical linemen's equipment.

Buckingham Standard Safety Strap No. 3042.
Drop-forged, tested snaps and buckles. Buckle end reinforced with metal to increase strength and wear.

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Floating feature insures full tool loops under all conditions. No rivet heads or metal contact the body.

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Federal Announces New 3-Point Selling Plan

A new three-point telephone equipment selling plan has been announced by L. J. Denney, director, telephone division, Federal Telephone & Radio Corp.

The new selling plan, according to Mr. Denney, comprises three main features: (1) Price reductions, made possible by important engineering and production economies and low-cost factory-to-customer selling; (2) A new method of purchase, offering equipment on a 60 days' trial basis, if desired, and (3) Quick deliveries—in most cases from factory shelf. All equipment made available under its terms will be offered at published prices, the company states.

"In this era of high prices, shortages of equipment, and unprecedented subscriber demand, we are confident," Mr. Denney stated, "that Federal's new selling plan—representing our conception of a supplier's responsibility to Independent operating companies—will go far toward the relief of price and procurement problems. We believe that our program for dealing with the present supply situation is one of the most interesting and effective answers available to the industry today."

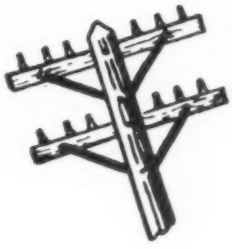
The first item of equipment offered to the Independent industry under Federal's new selling plan is its 6E PABX. This unit is a private automatic exchange, for use in retail establishments, business offices, small plants and large homes, that provides two central office trunks, six stations, and one local link. Attendance by an operator is unnecessary and all conversations are completely confidential.

Under the new method of purchase included in Federal's plan, any offered unit will be shipped to any point in the United States on a 60-day trial basis, if desired by the customer. This trial interval, the company states, will afford operating companies ample opportunity to check the performance of a unit and observe its revenue-producing possibilities—without cost to them. Unless company or subscriber tests are completely satisfactory, the trial unit may be returned at Federal's expense and no charge will be made.

All products offered under the plan will, for the most part, be available for quick delivery—direct from factory stock. If customer demand for an offered product exceeds its shelf stocks delivery should still be possible within a few weeks, Mr. Denney states.

Following the offer of the 6E PABX, other telephone products will be made available—at published prices—under

Poles and Crossarms



You're sure of deliveries on schedule when you order poles and crossarms from Graybar.

We supply full-length, pressure-treated poles and Douglas fir crossarms. The high, rigid standards these materials have to meet are your assurance of outstanding strength, endurance, and uniformity — adding up to long service.

...and Pole-Line Supplies

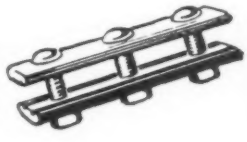
The insulators, wire, strand, hardware, and tools that Graybar distributes are all made by leading manufacturers.

Whenever you order telephone supplies from Graybar, you not only get first-quality items — you get delivery from a near-by Graybar warehouse, saving valuable time in either emergency or regularly scheduled shipments.

You can confidently give your near-by Graybar Telephone Specialist the responsibility of meeting *all* your electrical supply needs — accurately, quickly, and economically.

Graybar Electric Company, Inc.
Executive offices: Graybar Building, New York 17, N. Y.

4911

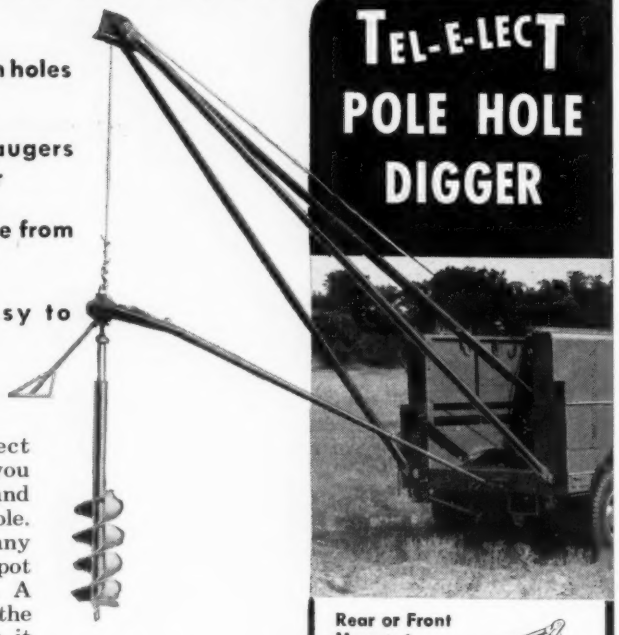


Everything in Telephone Supplies
Via Graybar

IN OVER 100 PRINCIPAL CITIES

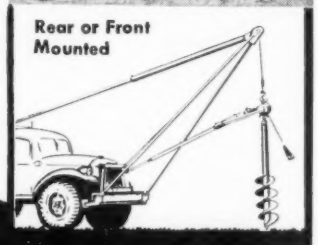
Operates ON ANY DERRICK TRUCK

- Adjustable for clean holes to 8 ft. deep
- Interchangeable augers 9" to 16" diameter
- Drills a straight hole from any truck position
- Easy to use—easy to transport



TEL-E-LECT POLE HOLE DIGGER

WITH the Tel-E-Lect Pole Hole Digger, you use the same truck and crew that sets the pole. You can drill a hole any place that you can spot the pole derrick. A single bolt attaches the digger to the truck; it works suspended from the derrick. Powered by the truck motor through a power take-off shaft, Tel-E-Lect is raised and lowered by the winch line. Fits the budget of even the smallest utility, and quickly pays for itself. *Ask for circular.*



TEL-E-LECT PRODUCTS, Inc.

9607 MINNETONKA BOULEVARD, MINNEAPOLIS 16, MINNESOTA

PENTA

FULL LENGTH TREATED NORTHERN WHITE CEDAR

'49 P&H PENTA POLES

They are clean and dry—easy to climb—safe for linemen.

P&H

MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y. "STILL IN THE LEAD"

Distributed by AUTOMATIC ELECTRIC SALES CORPORATION · STROMBERG-CARLSON COMPANY

the terms of Federal's three-point selling plan, according to the company.

V V

Waggoner Named Vice President Of Hubbard & Co.

The election of Raymond M. Waggoner as vice president in charge of national sales and to the board of directors was recently announced by Hubbard & Co. For the past 13 years he has been sales manager of the Hubbard Chicago plant territory.

R. M. WAGGONER

Prior to this responsibility, Mr. Waggoner was assistant sales manager of the northeastern territory of the Hubbard Pittsburgh plant from 1928 to 1936. He has been identified with Hubbard & Co. sales for the last 26 years.

V V

Exide Announces Manchex Storage Battery

Embodying a number of exclusive improvements in storage battery design, a new battery known as the Exide-Manchex is announced by The Electric Storage Battery Co., Philadelphia, Pa. (See cut).

The new battery product is of the sealed glass jar type and applicable to all types of stationary power in electric utilities, railway signaling, telephone, emergency power and lighting, rural electrification and other general applications.

One of the exclusive features of the Exide-Manchex, according to the company, is the positive plate known as the manchester type. This plate consists of a grid cast of a lead antimony alloy in which the active material is in the form of pure lead buttons. These buttons are forced by hydraulic pressure into circular openings in the grid. This form of active material does not wash away and is an important reason

FLOTROL

GIVES YOUR BATTERY THE WILL TO LIVE

The all-new Flotrol battery charger guarantees your battery's life span by accurate floating voltage!

Check these Advantages:

Delivers, Delivers, Delivers

Delivers FULL rated power.
Flotrol operates silently and efficiently.
Instantaneous response to load requirements.
Relieves battery of all normal work load.

Cuts Power Costs

Stretches your power dollar. Flotrol units reduce power costs up to 20% per year, savings you can't afford to miss.

Keeps Battery "At Ease"

Keeps your battery fully charged. Flotrol maintains full floating voltage of 2.15 plus or minus 1% on each battery cell. Your battery is ready to meet any emergency. Puts battery on "standby" orders. With Flotrol your battery becomes only an emergency worker—it stands silently by, at rest, without the wear and tear of normal working conditions. Flotrol does all this without moving a single part!

Flotrol Works—Battery Sleeps

NO MOVING PARTS
Flotrol contains no moving parts. Vacuum tubes, motors and other expendables have been designed out of Flotrol! Mechanical failure, disrupting service, is impossible.
24-AMP. 50-VOLT FLOTROL

Write today for your copy of bulletin "137"

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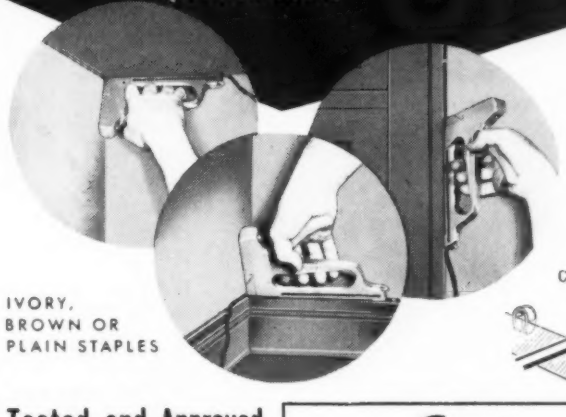
The HELLER Automatic STAPLING GUN for *Easier-Speedier* Installation of Wire

- **CANNOT DAMAGE WIRE**
- **OPERATES with ONE HAND**
  leaves one hand free to stretch the wire . . .
- **STAPLE SECURELY LOCKS**
  in hard or soft wood, plaster walls, composition board



Tested and Approved by BELL Telephone Laboratories and in use throughout the BELL System . . .

This Stapling Gun is a precision-built tool with parts machined and fitted. It will withstand heavy duty, constant usage. Easily staples braided wire, rubber and plastic covered wire, single, double and triple strand wire and hollow tube lines. Staples come in long bars ready to load. They are packed in easy-to-handle and easily accessible vest-pocket containers which protect bars from breakage or spills.

Saves $48.00 on One Installation

Installation:
940 ft. of inside wiring in a super market. (Stapled 6" intervals)

Installation Time:
Using hand driven brads, a similar job took two installers 4 Days time . . **64 hrs**
Using HELLER Stapling Guns, two installers completed the job in 2 days **32 hrs**

***Saving:* 32 hours @ $1.50 per hr. or $48.00**

— DISTRIBUTED BY —

Automatic Electric Sales Corporation, Chicago, Illinois
Buckeye Telephone & Supply Co., Columbus, Ohio
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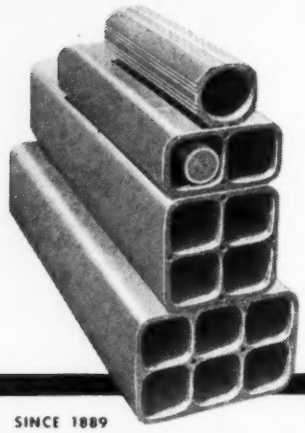
The HELLER Co.
Manufacturers of STITCHERS • TACKERS • STAPLERS • STAPLES
2127 Superior Avenue • Cleveland 14, Ohio



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The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.

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Printing

for Telephone Companies

AS YOU WANT IT

From Suttle—You can get stock forms to help handle plant reports and office accounting efficiently.

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For years we have specialized in printing for telephone companies and we understand your requirements.

An inquiry about your needs will be given careful attention.

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SUTTLE EQUIPMENT CO.
LAWRENCEVILLE, ILLINOIS

DEPEND ON

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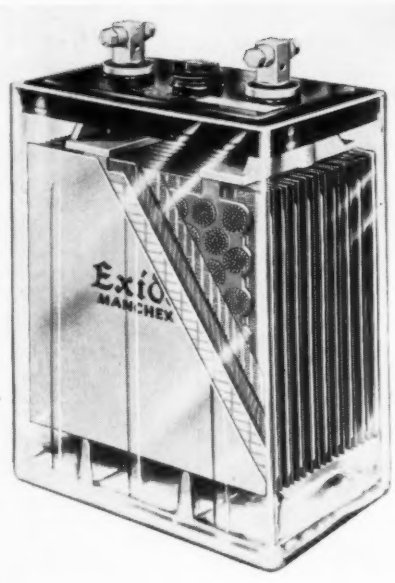

for the long life of the manchester plate, the company states.

The "Permanized" negative plate is constructed of a lead antimony grid or framework with a series of vertical ribs connected by short horizontal bars. These bars, which are flush with the plate surface, extend only part way through the plate and are staggered on opposite sides. The active material is in the form of strips or ribbons of sponge lead, extending from top to bottom of the plate between the ribs and locked in position by the horizontal bars.

The separators are of specially treated wood, teamed with low resistance slotted plastic separators; a combination that provides proper insulation between plates and assures high discharge characteristics under all operating conditions.

High rate discharge characteristics are obtained from these cells because of the heavy terminal posts equipped with copper inserts (except in the three smaller size cells) and the heavy straps between the plates and terminal posts, the company states. These same cells are also equipped with a burned ring seal where the post is fitted through the cover. This permanently seals the opening around the posts and eliminates electrolyte seepage.

The molded glass jar in which the Exide-Manchex is assembled, in design, uniformity of dimensions, strength and quality of glass, provides a compact and neat assembly making for ease of inspection and maintenance. Deep seal covers are made of tough rubber for trouble-free service, according to the company.

The Exide-Manchex is available in a wide variety of sizes and capacities, from 40 to 960 ampere hours.

An illustrated catalogue (Form

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$37.50 Per M
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ORDER NOW

Finest Quality Electrical Porcelain, Brown Glaze, One Inch Threaded Pin Hole. 2-3/16" Diameter, 3-1/8" High. You'll Like Them. Satisfaction Guaranteed.

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INSTALLATION SERVICE

Made to guarantee top quality in insulation and top performance on your telephone installations. A complete and diversified line with each item especially engineered and produced to exacting specifications for telephone service.

Sold through your jobber. Write direct if he does not carry the P.P. line.

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FINDLAY, OHIO

PREMAX

Property Marking on Telephone Lines

ABC Co

Economically Accomplished With Premax Aluminum Tags

Once telephone poles and other properties are marked for identification with Premax Stamped and Embossed Tags, or Letters and Figures, the job is done for all time. No maintenance, for Premax Markers outlast the average pole.

Whether it is a new line or renewal of obliterated stenciling, investigate Premax Markers —they materially reduce maintenance costs.

Premax Products

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4944 Highland Av., Niagara Falls, N. Y.

4852) can be obtained by writing to The Electric Storage Battery Co., 19th St. and Allegheny Ave., Philadelphia 32, Pa.

Courts and Commissions

(Concluded from page 29)

Alexander (Kan.) Telephone Co. for permission to transfer its franchise and to cease operating as a public utility.

Feb. 14: Hearings on applications of Green (Kan.) Telephone Co., Inc.: (1) for certificate regarding proposed issue of $10,000 of preferred stock; (2) for authority to change rates.

Feb. 14: Hearing on application of Alton (Kan.) Telephone Exchange for authority to change rates.

Minnesota Railroad & Warehouse Commission

Feb. 8: Hearing on application of Central Telephone Co., Sioux Falls, S. D., for authority to change rates at its Minnesota exchanges.

New York Public Service Commission

Feb. 3: Hearing on petition of Oswego County Independent Telephone Co., Fulton, for permission to (1) issue $250,000 of mortgage bonds; (2) increase capital stock; (3) issue $100,000 par value of common stock; (4) issue $200,000 par value of preferred stock.

Oklahoma Corporation Commission

Feb. 9: Hearing on application of Cleo Telephone Exchange, Cleo Springs, for authority to increase rates.

Feb. 10: Hearing on application of Pleasant Valley Telephone Co., Pleasant Valley, for authority to increase rates at its Pocasset exchange.

Feb. 11: Hearing on application of Coryell Telephone Co., Jay, for increased rates.

Feb. 11, Mar. 15 and 16: Hearing on application of Southwestern Bell Telephone Co. for increased rates.

Feb. 18: Continued hearings on applications of Lindsay residents for improved service from Southwestern States Telephone Co., Brownwood, Tex., and for a temporary decrease in rates.

May 4: Continued hearing on application of Southwestern Bell Telephone Co., Southwestern Associated Telephone Co., Lubbock, Tex., Southwestern States Telephone Co., Brownwood, Tex., and Oklahoma Telephone Co., Broken Arrow, for continuance of rules similar to those of expired federal regulation U-2 governing order of service installation.

Pennsylvania Public Utility Commission

Feb. 2, 3, and 4: Continued hearings on complaints by City of Pittsburgh *et al* regarding alleged unfairness of Bell Telephone Co. of Pennsylvania's rates; commission investigation of such.

Wisconsin Public Service Commission

Feb. 1: Hearing on complaint of Thomas Conroy *et al* vs. Badger Telephone Co., Webster, regarding service.

Feb. 1: Hearing on application of Cuba City (Wis.) Telephone Exchange, for a determination of its service obligation to subscribers between Belmont and Cuba City and for authority to discontinue free intercity toll service

Feb. 1: Hearing on application of Kaukauna (Wis.) Telephone Co. for authority to increase rates.

Feb. 2: Hearing on application of Spring Lake (Wis.) Telephone Co. for authority to increase rates.

Feb. 2: Hearing on application of Downsville (Wis.) Telephone Co. for permission to extend service to William Weber in Weston.

Feb. 2: Hearing on complaint of Mrs. Virgil Brehm vs. Wisconsin Telephone Co., regarding service extension.

Feb. 3: Hearing on application of Liberty-Newton Telephone Co., Liberty, for authority to increase rates.

Feb. 4: Hearing on complaint of Russell Buck *et al* vs. Wittenberg (Wis.) Telephone Co., regarding extension of service.

V V

Nebraska Sales Tax Proposed

Among the bills recently introduced in the Nebraska legislature is one providing for a two cents sales tax, with all communication services included. Sponsors of the measure asked, however, that final action be deferred until it has been determined how great an increase in state appropriations is carried in the biennial expense bill, the purpose being to enact the sales tax as a replacement tax, thus relieving real estate from possibilities of an increase.

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YOUR ORDERS RECEIVE PROMPT ATTENTION
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B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co., Phelps, Wis.—Northern White Cedar Poles, plain or butt treated.

Curtis Pole Co., Helena, Mont.—Fir, Larch, Lodgepole Pine Poles. Butt treated or Full Length Treated with Creosote or Penta.

Forest Products Treating Co., 541 Pittock Block, Portland 5, Ore.—Douglas Fir and Lodgepole Pine Poles Pressure Treated at Laramie, Wyo., and The Dalles, Ore.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

T. M. Partridge Lumber Co., Minneapolis, Minn.—Northern White—Western Red Cedar Poles, Plain or butt-treated.

Wood Products Co., American Bank Bldg., Portland, Ore.—Creosoted Douglas Fir, Larch, and Lodgepole Pine Poles.

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Pressure Treatment of Southern Pine Poles, Crossarms, Conduit, Cover Plank, Ground Wire Moulding with No. 1 Creosote Oil or Pentachlorphenol carried in stock permitting prompt shipments of carload and less than carload orders.
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CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less.

POSITION WANTED

Operator, single, with 30 years' service, desires position with Independent telephone company on west coast—preferably northwest. Would consider small agency. Write Box No. 2731, c/o TELEPHONY.

HELP WANTED

EXPERIENCED COMMERCIAL MANAGER. Permanent position with good salary and splendid future. Write complete details as to experience and background. Enclose snapshot or photograph. Elyria Telephone Co., Elyria, Ohio.

A man to maintain North all relay, common battery, and magneto equipment. One who has plant experience and the ambition to work up to Assistant Manager with growing Independent company. Write Box No. 2720, c/o TELEPHONY.

CABLEMAN AND LINEMAN by Midwestern Class A telephone company. Opportunity for permanent employment and good wages. Give age, experience, etc. Write Box No. 2718, c/o TELEPHONY.

Permanent employment available for a competent combination local exchange manager; a telephone inspector; a line construction foreman, and a cable splicer. Opportunity for advancement in a company with 66 separate exchanges and 62,000 stations. Apprentice training program provides special advantages to ex-service men. Advise qualifications in applying to Fred G. Williamson, Plant Supt., Northern Ohio Telephone Co., Bellevue, Ohio.

HELP WANTED

Switchmen, automatic or manual. Could use apprentice with two years or more training. Make application giving complete details — telephone experience, marital status, etc. Write Ohio Consolidated Telephone Co., 824 Seventh St., Portsmouth, Ohio.

FOR SALE

5,000—1½" x 5/16", 12,000—1½" x 3/8", 9,000—2" x 3/8" Copperweld Cable Rings, new. Original packages. 25 per cent off catalogue price; FOB Kittanning, Pa. Write Kittanning Telephone Co.

A. E. Type 40 Self Contained Monophones with dial equal to new $18. National Telephone & Signal Corp., 156 East 42nd St., New York 17, N. Y.

Two manual common battery switchboards: One—three-position, 400 line, Kellogg Masterbuilt, with universal cords. One—seven-position, 800 line, Stromberg-Carlson. Write for details to Columbia Telephone Company, Columbus, Penn.

200 MAGNETO WALLSETS, Compact Type, serviceable condition. Inquire—THE LINCOLN TELEPHONE AND TELEGRAPH CO., LINCOLN, NEB.

FOR SALE

TELEPHONE WIRE, No. 18 gauge 7 strand—4 steel—3 copper, all tinned—rubber covered overall braid, waterproof.....$1.00 per 1000 ft.

INDUCTANCE COIL D166840 Retardation; WECO DWG D-161818S (2 Windings inductance 2.1 H at 900 cycles; metal case, electromagnetic shield; Stud mounting. NEW.....$1.75 Each

TELEPHONE REPEATING COIL D14125, 500 VAC nominal current rating 3 MA, 500 HY; 2-27/64" x1-55/64"x4-25/32", ST CARL No. 14-AL (500 VAC insulation test; metal case, triple shielded; 4 Solder Lug). NEW.....$1.75 Each

TELEPHONE RELAY C15652, 2500 OHM Resistance, C. P. Clare & Co.
BRAND NEW .....$ .75 Each

TS-9 SIGNAL CORPS HANDSET. Magnetic phone—1000 ohms impedance. Single button carbon mike is rated at 200 ohms. Built-in push-to-talk butterfly switch and 6 ft. rugged rubber-covered cable $2.75

FIELD TELEPHONES EE3-4-5; ideal for farm, warehouse, garage extension, or similar use; works on 2 flashlight cells. With handset, generator, ringer, etc., in strong case. USED BUT GOOD .....$4.95 Each

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SOUND POWERED HANDSET TS10M, NEW .....$8.50 Each

TELEPHONE TRANS OR RECEIVING CAPSULES for Handsets—Kellogg, St. Carl, Connecticut, Holtzer-Cabot, American—Guaranteed Good .....$ .50 Each

HANDSETS—H23U. BRAND NEW.....$3.75 Each

BD-71 6-line SWITCHBOARD. USED.... 6.50 Each

GN-38 with Edward 13 Lungen Bell. USED ..... 4.50 Each

RECEIVER, Molded Bakelite Earcap. USED..$ .07

HANDSET, Molded Bakelite Mouthpiece. USED ..... .07

HANDSET, Brass Retaining Ring. USED..... .05

HANDSET, Bakelite Transmitter Screw. USED .02

SWITCH, Signal Corps SW 116. USED..... .15

PL 58. USED..... .10

TELEPHONE COIL, C161. USED..... 1.25

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MAGNETO TELEPHONES

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WALL SETS — DESK BOXES

TWO- THREE- OR FIVE-BAR GENERATORS

1000 OHM—2500 OHM OR HIGH IMPEDANCE RINGERS

DESK STANDS

1020-AL OR 1051-AL (DIAL BLANKED)

PROMPT DELIVERY

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LINEMEN'S
SURPLUS EQUIPMENT
ORDERS OVER $100 FREIGHT PREPAID

3,000 Leather Tool Belts.....$3.00 ea.
3,000 Leather Safety Straps.....$3.00 ea.
3,000 Buckingham Pole Climbers (Less Straps and Pads.....$2.00 pr.
5,000 #LC-25A Linemen's Lag Wrenches (Equal to Klein's #3146).....$1.25 ea.
3,000 Klein #132-15 Splicing Clamps....$3.25 ea.

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CROSSARMS—Telephone pole crossarms for eight 1¼ inch pins—7 ft. 4 inches long by 3¼ inches by 4¼ inches, yellow pine, creosote treated. Price $0.90 each, FOB Palmyra, N. J.

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Transmitters, Ringers, Relays, Drops, Induction Coils, Generators, Protector Strips, Station Protectors, Desk Stands, W. E. and Kellogg, Ringer Boxes, Magneto and Common Battery, Dials, Cable Terminals, Fuses, Small Switchboards. Let us know what you have.

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